APPARENT ECOLOGICAL CHARACTERISTICS OF SOME COMMON FRESHWATER DIATOMS

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OCTOBER, 1981

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PREFACE

This report was prepared as a literature review of the ecology of some common freshwater diatoms. Particular attention was paid to the apparent requirements by many species for narrow ranges of lake alkalinity and pH. Data have been assembled in a convenient tabular form to permit alterations and additions as new information comes available. The report is intended as a working document especially to aid in the interpretation of diatom remains in lake sediments, as these studies are being initiated in Ontario and other parts of the world to assess possible long term changes in lakewater quality.

INTRODUCTION

The taxonomy of diatoms is based on the structure and ornamentation of their siliceous frustules. These frustules are preserved in lake sediment; hence sections of a sediment core, when dated, provide us with considerable insight into historical diatom communities of lakes (Round 1957, 1961; Haworth 1972; Moss 1979). An understanding of diatom taxonomy and ecology is therefore of importance for assessment of historical changes in, for example, trophic state or acidification of lakes. This report represents the first task in the development of this understanding and has involved a consolidation of readily available data on diatom ecology.

Data concerning the ecological characteristics of approximately 1000 species and varieties of diatoms were compiled from 62 references. The purpose of this report is to provide a framework for the interpretation of diatom community structure in lake sediment cores. It represents a modified and updated version of an EPA report entitled "Environmental Requirements and Pollution Tolerance of Freshwater Diatoms" (Lowe 1974).

PARAMETERS

Information available with regard to diatom ecology indicates that they are very widespread and occur in a wide range of habitats. I chose to summarize the following parameters from the references: pH, nutrients, halobion spectrum (salinity), current, general habitat and specific habitat. I also included an Additional Information column which contains information pertaining to the saprobien spectrum (organic pollution tolerance), general habitats not listed, seasonal distribution, apparent temperature optima and tolerance limits, specific periphytic types, geographical distribution, Hustedt's (1937-1938) oxygen system and Niessen's (1956) calcium system, as used by Lowe (1974).

Details pertaining to the categories of each parameter are listed below:

1. pH - a modification of ranges described by Hustedt (1937-1938)

Acidobiontic:	occurs at pH less than 5.5
Acidophilous:	occurs at pH less than or equal to 7
Indifferent:	occurs around pH 7
Alkaliphilous:	occurs at pH greater than or equal to 7
Alkalibiontic:	occurs in alkaline waters (if species was found in pH 9 or higher, I designated it as alkalibiontic)

Under Additional Information, "+" after pH value indicates that the species is found at that pH or higher.

2. Nutrient - a modification of Smith (1966)

Eutrophic:	occurs in water with high nutrient concentrations
Mesotrophic:	occurs in water with moderate nutrient concentrations
Oligotrophic:	occurs in water with low nutrient concentrations
Dystrophic:	occurs in water rich in humic material

3. Halobion - a modification of Kolbe (1927)

Polyhalobous: occurring in salt concentrations greater than 40,000 mg/L
Euhalobous: marine forms occurring in salt concentrations of 30,000 - 40,000 mg/L
Mesohalobous: brackish water forms occurring in salt concentrations of 500 - 30,000 mg/L
alpha range - occurring in salt concentrations of 10,000 - 30,000 mg/L
beta range - occurring in salt concentrations of 500 - 10,000 mg/L
Oligohalobous: freshwater forms occurring in salt concentrations of less than 500 mg/L
halophilous - stimulated by small amounts of salt
indifferent - tolerates small amounts of salt
halophobous - does not tolerate small amounts of salt
Euryhalobous: occurs over a wide range of salt concentrations often encompassing more than one category

4. Current - a modification of Hustedt (1937-1938)

Limnobiontic: occurs in standing water
Limnophilous: occurs in standing water but may be found in running water
Indifferent: common both in flowing and standing water
Rheophilous: characteristic of running water but may be found in standing water
Rheobiontic: occurs in running water

5. General Habitat - a modification of Lowe (1974) and Foged (1974, 1977)

Estuary:	occurs in both estuaries and brackish water
Lake:	occurs in large inland bodies of standing water
Pond:	occurs in small bodies of standing water
River:	occurs in larger streams and rivers
Spring and Stream:	occurs in smaller streams and rivers
Lagoon:	occurs in lagoons
Pools:	occurs in pools: e.g. pools in swamps, temporary woodland or bottomland pools
Oozing Area:	occurs in oozing areas; e.g. rock walls
Thermal Springs:	occurs in thermal springs and their outflows
Swamp:	occurs in swamp (bogs or waterlogged areas from Foged (1977) are included here)
Terrestrial:	occurs in soil
Other:	includes bogs, ditches, aerophilous, etc.

6. Specific Habitat - Lowe (1974)

Euplanktonic:	usually found suspended in water
Tychoplanktonic:	usually periphytic or terrestrial, but often suspended in water
Periphytic:	occurring on substrate and submerged objects

Additional Information

(a) Saprobien System - proposed by Kolwitz and Marsson (1908) with modifications by various investigators as used by Lowe (1974)

Polysaprobic: characteristic of zone degradation and putrefaction where oxygen is either absent or very low in concentration

Mesosaprobic: characteristic of zone of oxidation of organic pollutants

alpha range: in area of stronger pollution where nitrogen is in the form of amino acids

beta range: in area of weaker pollution where nitrogen is in the form of ammonia compounds

Oligosaprobic: characteristic of zone where oxidation of organic pollutants is complete; the concentration of inorganic nutrients is very high

Saprophilic: occurs usually in polluted waters but is also found in clean water

Saproxenous: occurs usually in clean water but is also found in polluted water

Saprophobic: characteristic of unpolluted water

(b) Classification of Periphytic Species - Lowe (1974)

Epipelic:	occurs on mud
Epilithic:	occurs on rock
Epidendric:	occurs on wood
Epiphytic:	occurs on plants
Epizooic:	occurs on animals
Attached:	normally anchored on various substrates
Unattached:	normally free

(c) Seasonal Distribution - Lowe (1974)

This indicates the season of optimal growth: winter, spring, summer or fall.

(d) Temperature: - Lowe (1974)

Euthermal:	occurs usually at temperatures greater than 30°C
Mesothermal:	occurs usually at temperatures between 15° - 30°C
Oligothermal:	occurs usually between 0° - 15°C
Stenothermal:	occurs within a temperature range not greater than 5C°
Metathermal:	occurs within a temperature range of 5 - 15C°
Eurythermal:	occurs within a temperature range 15C° or greater

(e) Geographical Distribution - Lowe (1974)
(i.e. cosmopolitan, tropical, subtropical, temperate, arctic, alpine)

(f) Oxygen - Hustedt (1937-1938)

(g) Calcium - Niessen (1956)

DATA TABULATION

Where no specific parameter categories were designated for some species, I designated the category according to the conditions of occurrence reported in the reference. In cases where the author designated a category not in accordance with reported conditions, I gave preference to the author. In some cases, data pertaining to the conditions of a particular lake (especially pH and nutrients) were found in a different reference and these conditions were applied to any species found in that lake.

Wherever possible, I followed the taxonomic nomenclature used in Patrick and Reimer (1966, 1975), and referred to Sieminska (1964), Foged (1974, 1977) and Hustedt (1930, 1937-1938) for additional information. Synonyms given in Patrick and Reimer (1966, 1975) were also noted. I did not give a consensus of the parameters found, and it should be remembered that a great variety of techniques of sample collection and analysis are represented by the data as presented.

The reader should recognize that some of the information presented in this report is subject to change, as studies of diatom taxonomy and ecology are continually adding to the data base. Maximum use of this report in water quality studies will depend on its continual revision and expansion.

ACKNOWLEDGEMENTS

I would like to thank Ken Nicholls, Plankton Taxonomy Unit Supervisor, for initially proposing this project and for reviewing the written portion. I would also like to thank June Poliacik and Lynda Nakamoto in the Plankton Taxonomy Unit, who helped tabulate the data, and Y.K. Yung for determination of taxa and synonyms and technical assistance in the preparation of this report.

A special acknowledgement goes to Rex L. Lowe, whose 1974 EPA publication, "Environmental Requirements and Pollution Tolerance of Freshwater Diatoms", served as a guide for my work. Permission to adopt the parameters and parts of the format of the 1974 EPA publication for this report was given by Gary B. Collins, Project Officer, EPA, Cincinnati.

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Taxon Achnanthes sp.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Achnanthes affinis Grun.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Achnanthes austriaca Hust. var. austriaca

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Achnanthes austriaca var. helvetica Hust.

Synonym

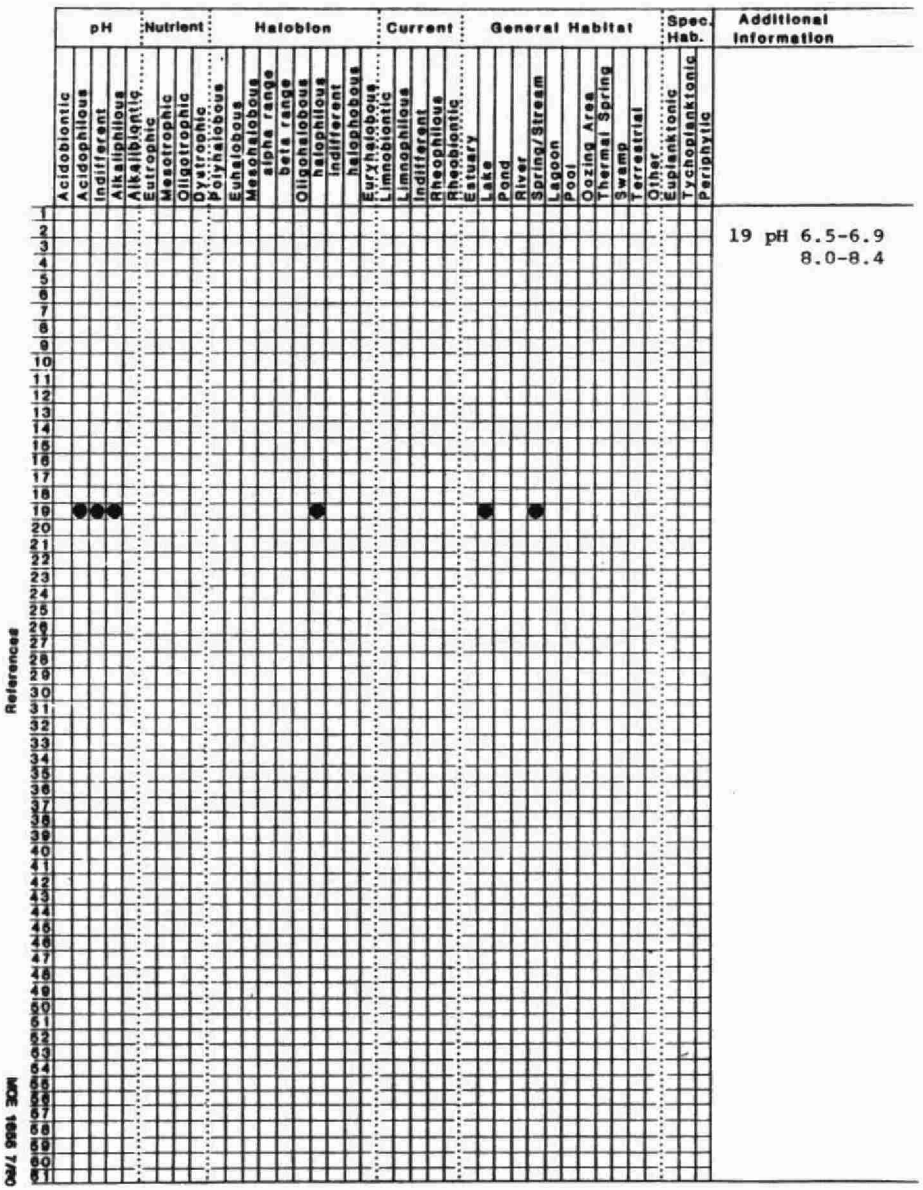
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Ministry of the Environment
Ontario

Taxon Achnanthes biasolettiana (Kutz.) Grun.

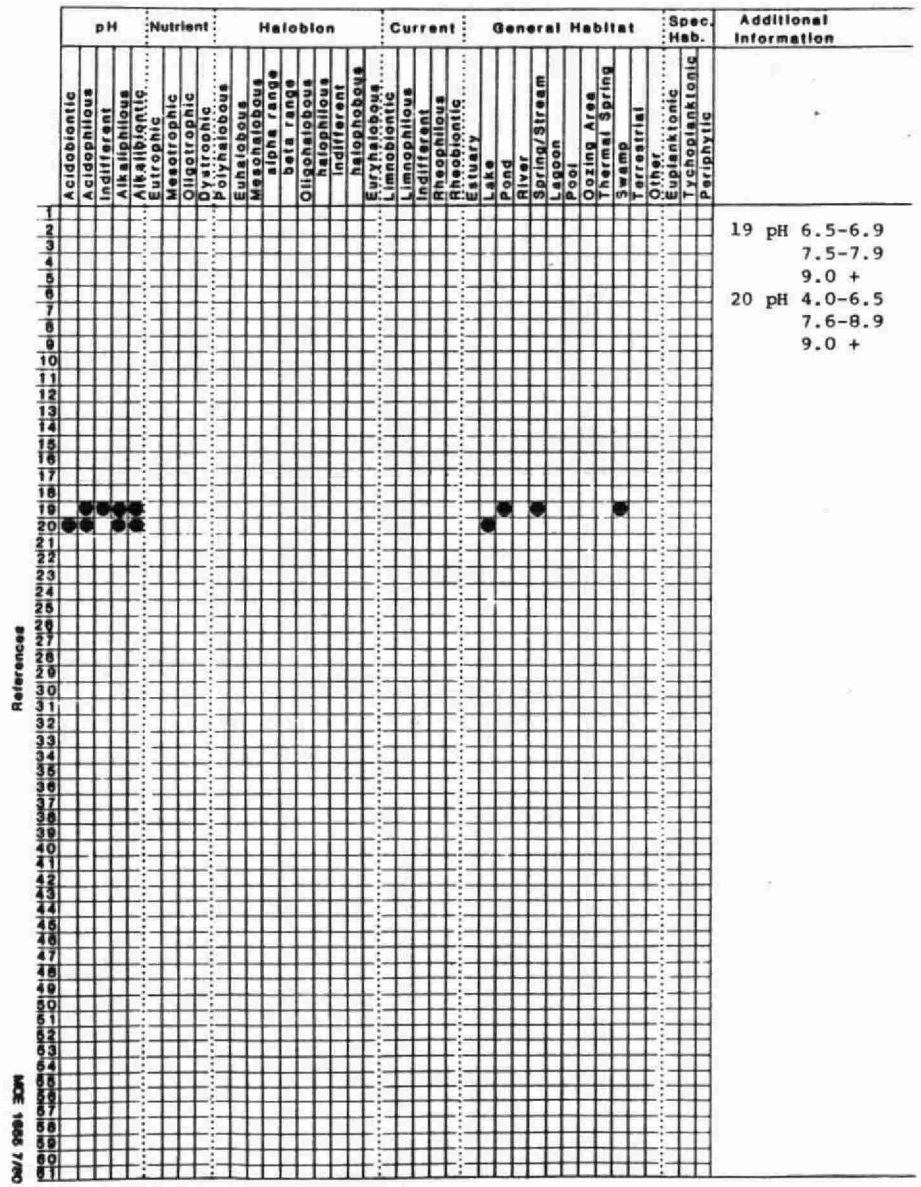
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes borealis Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes brevipes Ag. var. brevipes

Synonym

References	pH					Nutrient					Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Achnanthes brevipes var. parvula (Kutz.) Cl.

Synonym

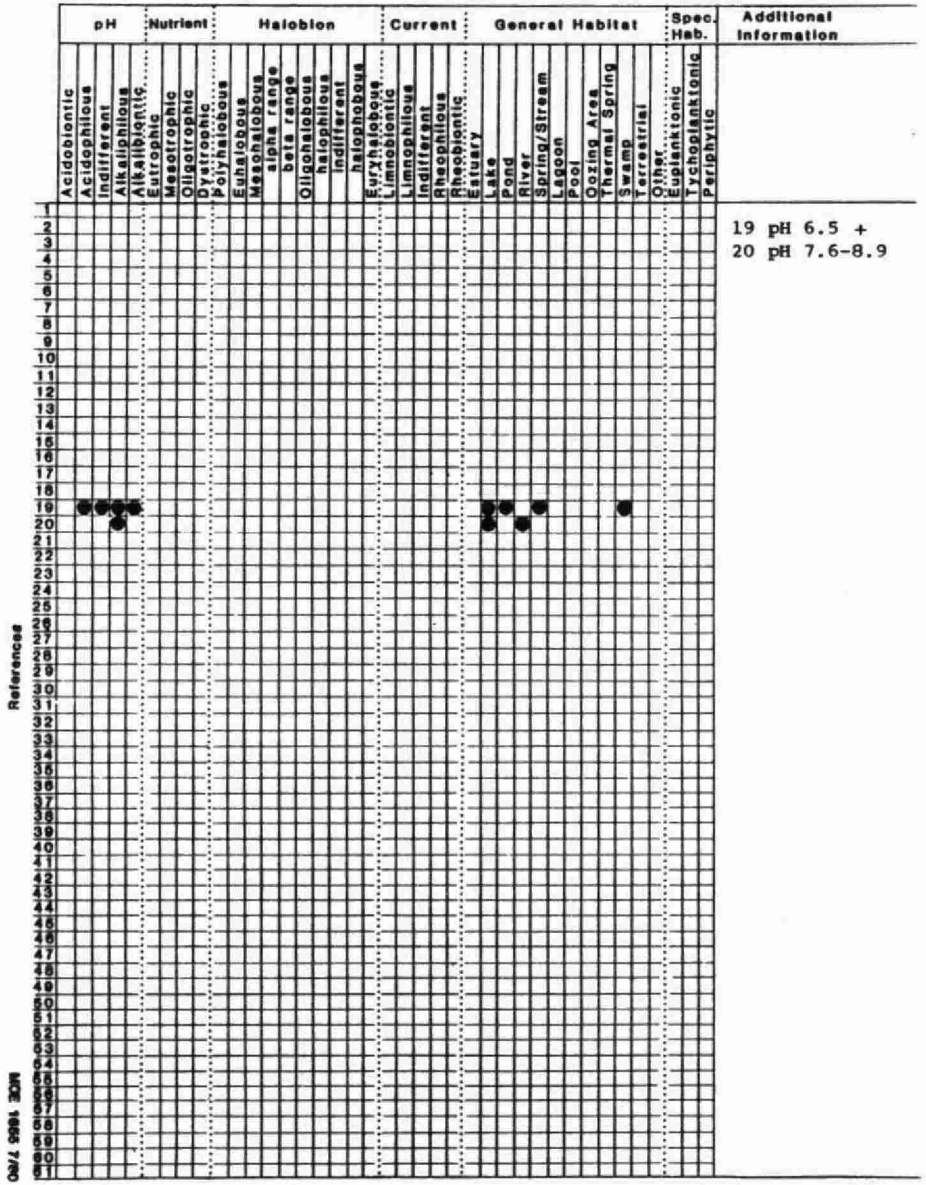
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Ministry of the Environment
Ontario

Taxon Achnanthes calcar Cl.

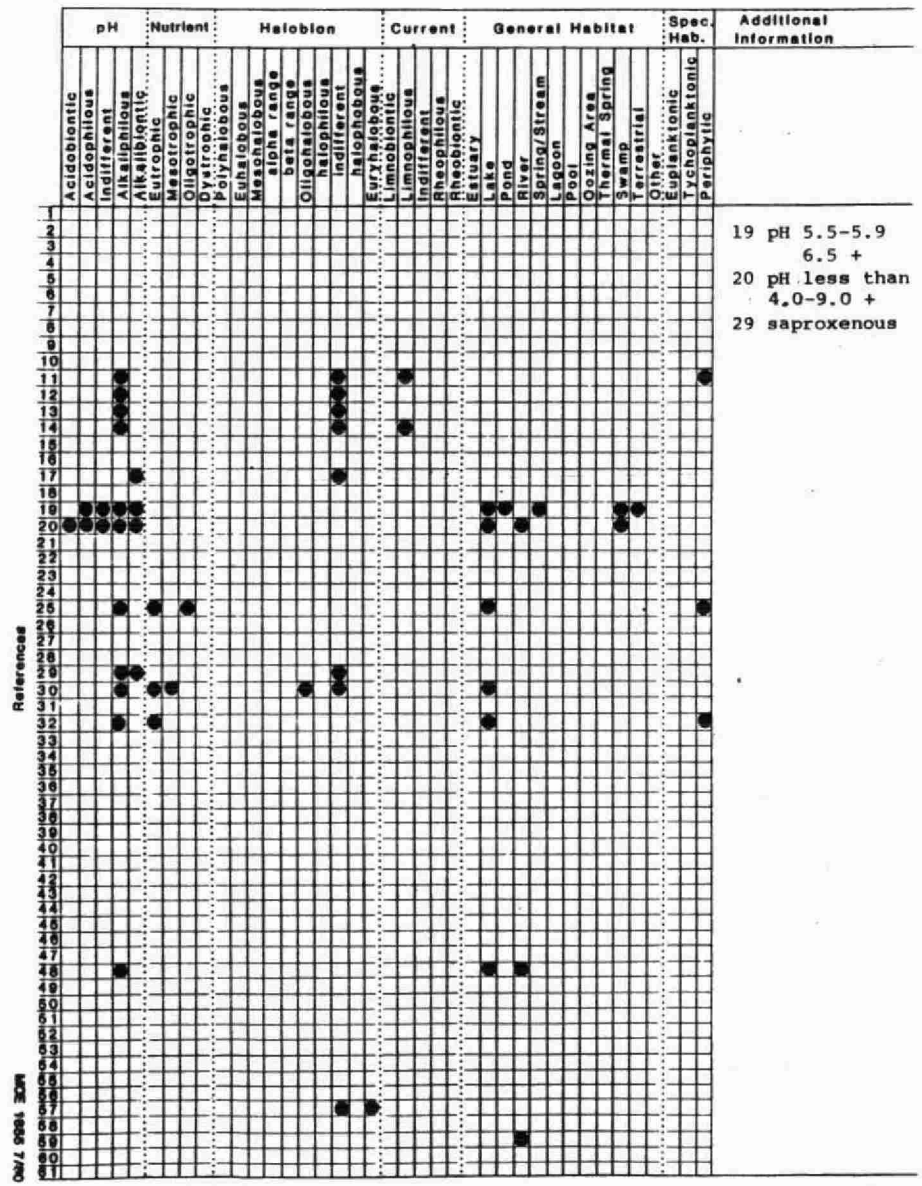
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes clevei Grun. var. clevei

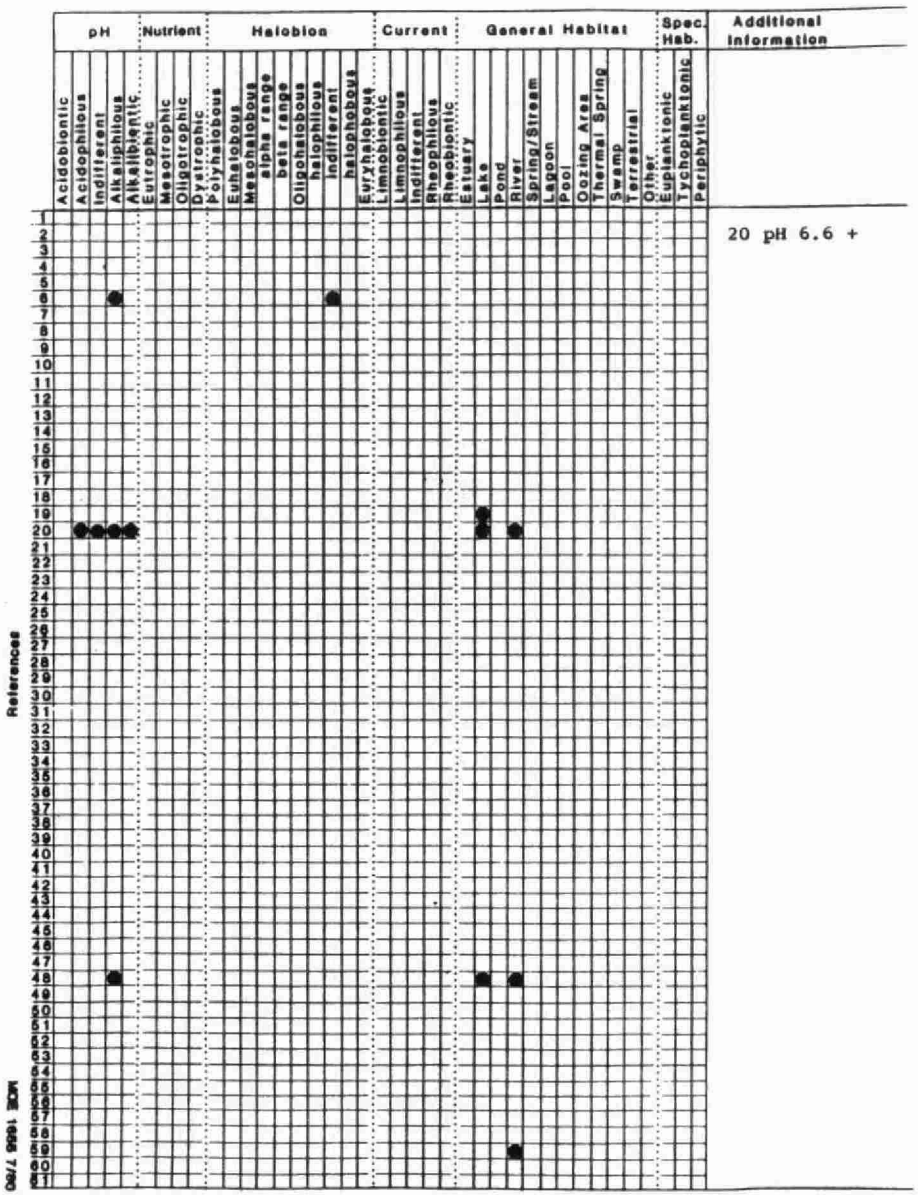
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Ministry of the Environment
Ontario

Taxon Achnanthes clevei var. rostrata Hust.

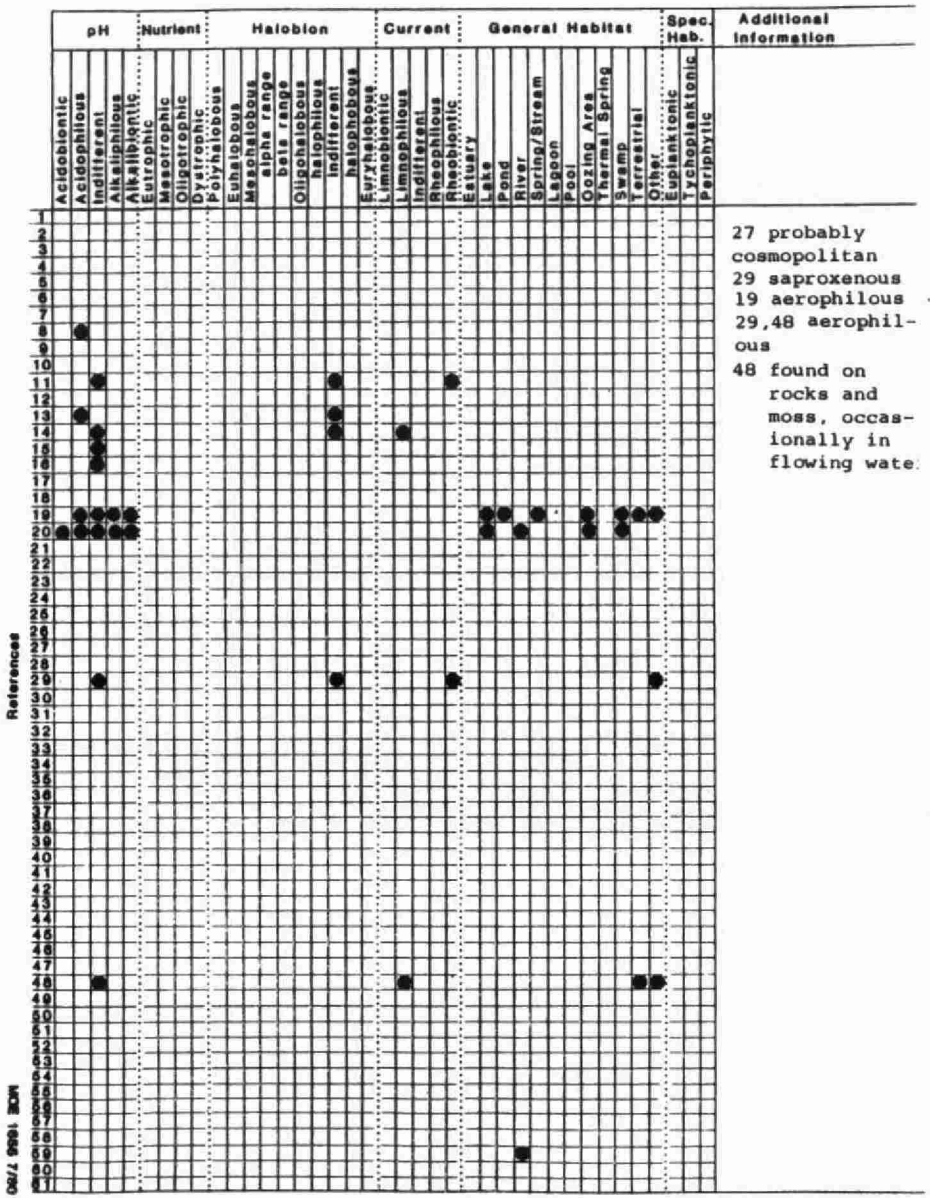
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes coarctata (Breb.) Grun.

Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes conspicua A. Mayer

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Achnanthes delicatula (Kutz.) Grun.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
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Taxon Achnanthes depressa (Cl.) Hust.

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Ministry of the Environment
Ontario

Taxon Achnanthes dispàr Cl.

Synonym

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Ministry of the Environment
Ontario

Taxon Achnanthes elliptica var. pungens Cl.-Eul.

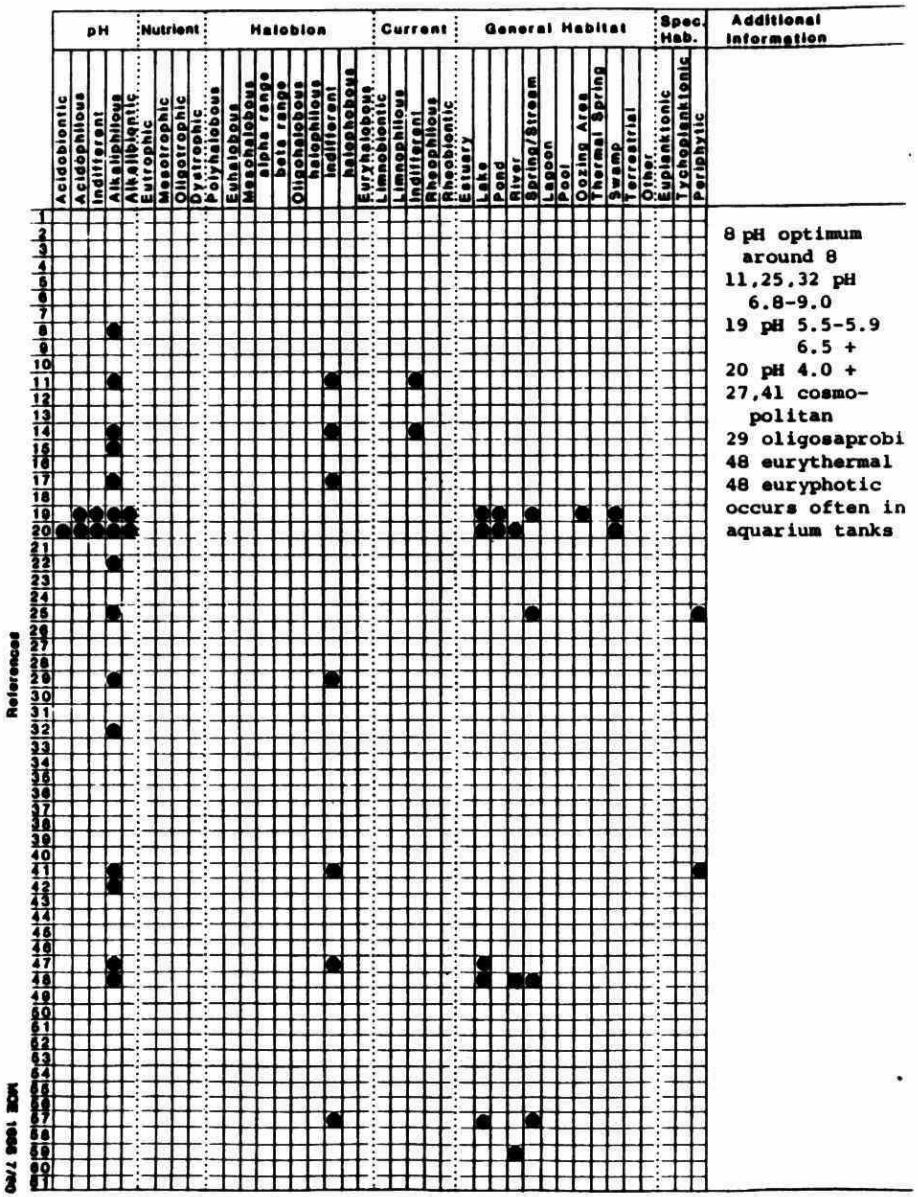
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References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
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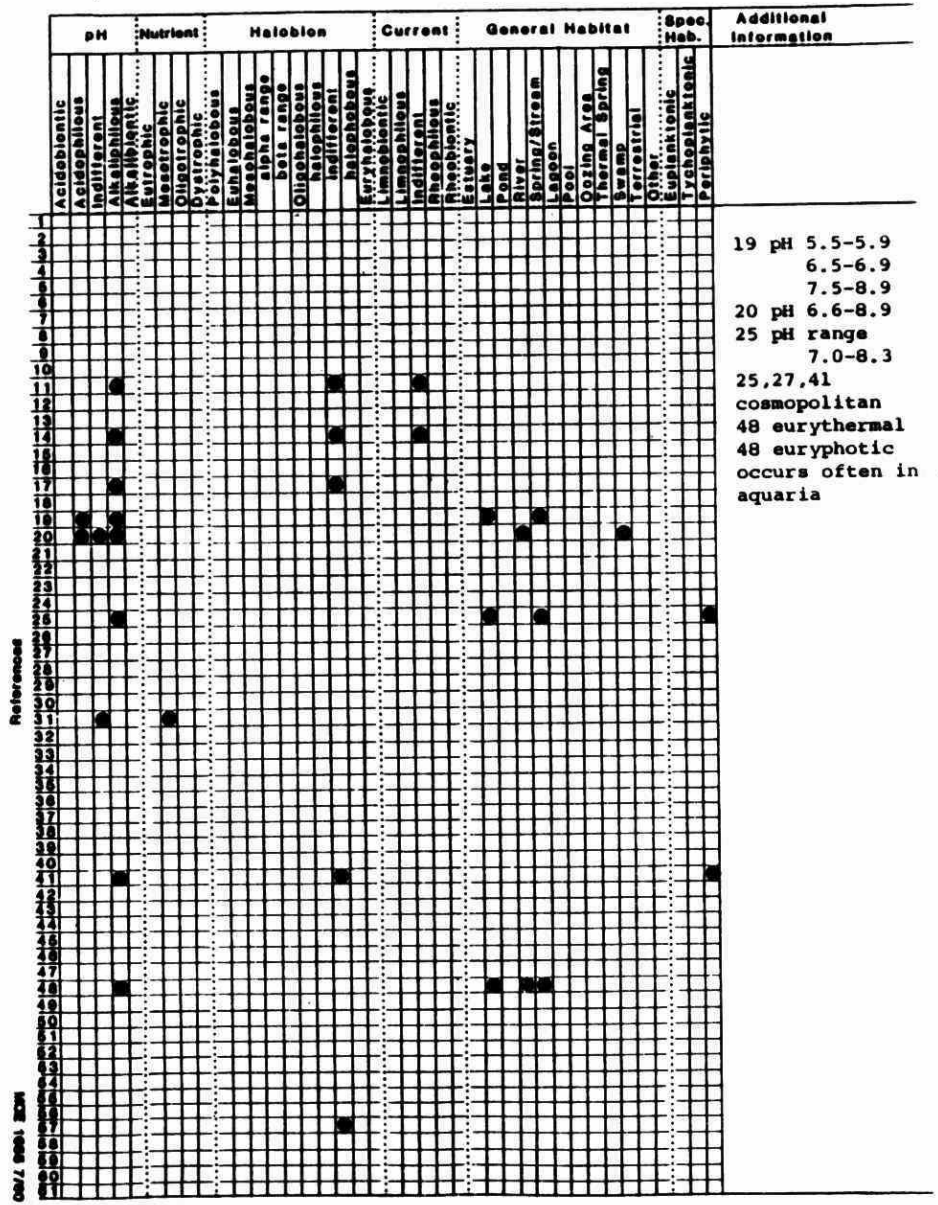
Taxon Achnanthes exigua Grun. var. exigua

Synonym



Taxon Achnanthes exigua var. heterovalva Krasske

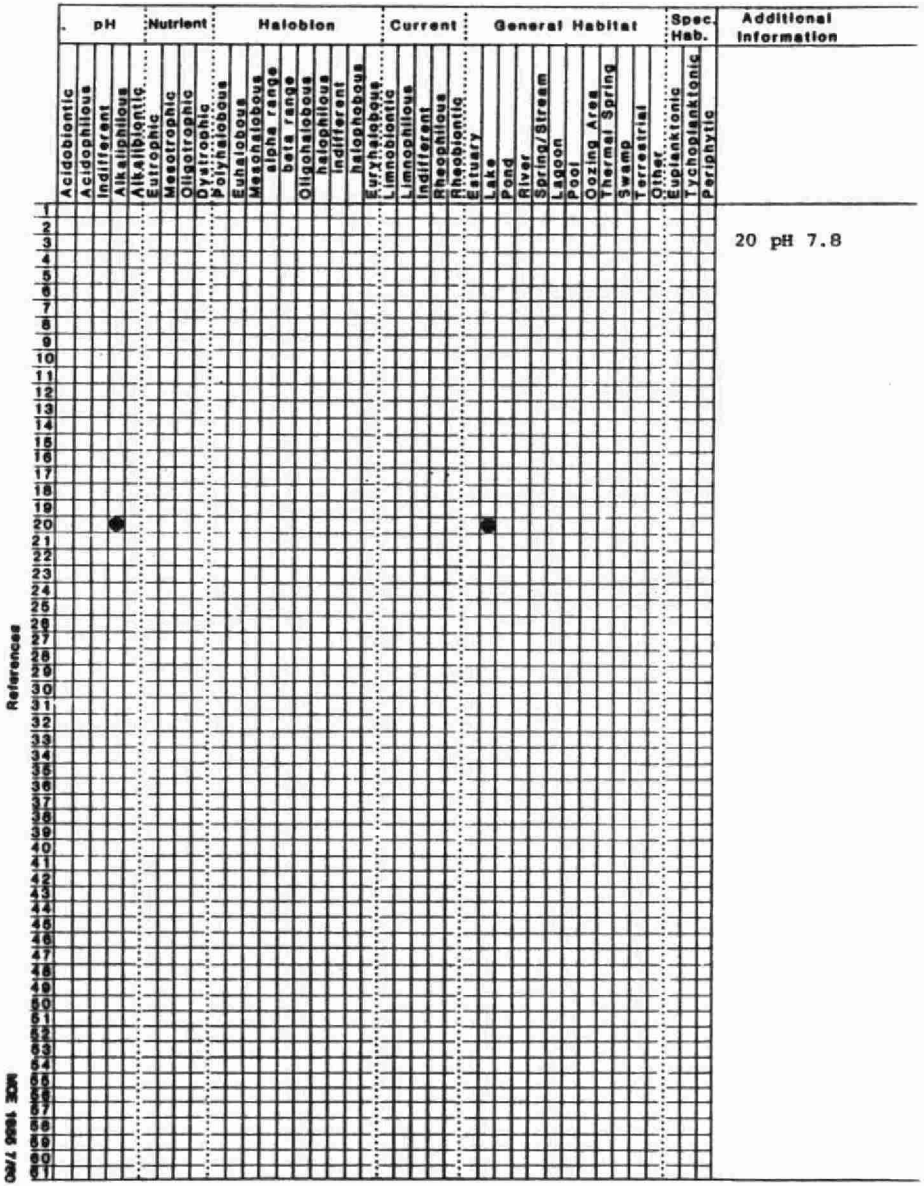
Synonym Achnanthes exigua var. heterovalvata Krasske 19.20



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Taxon Achnanthes exilis Kutz.

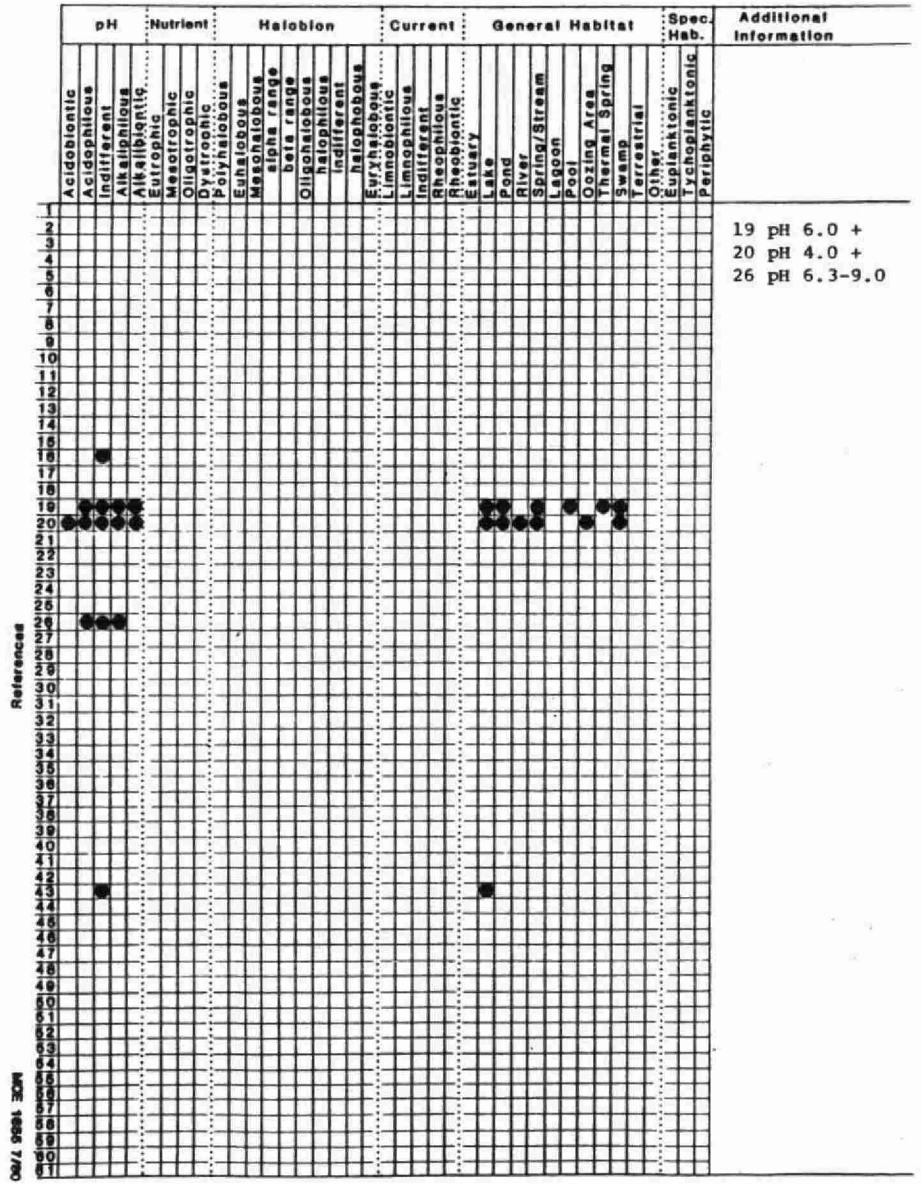
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes flexella var. alpestris (Kutz.) Brun.

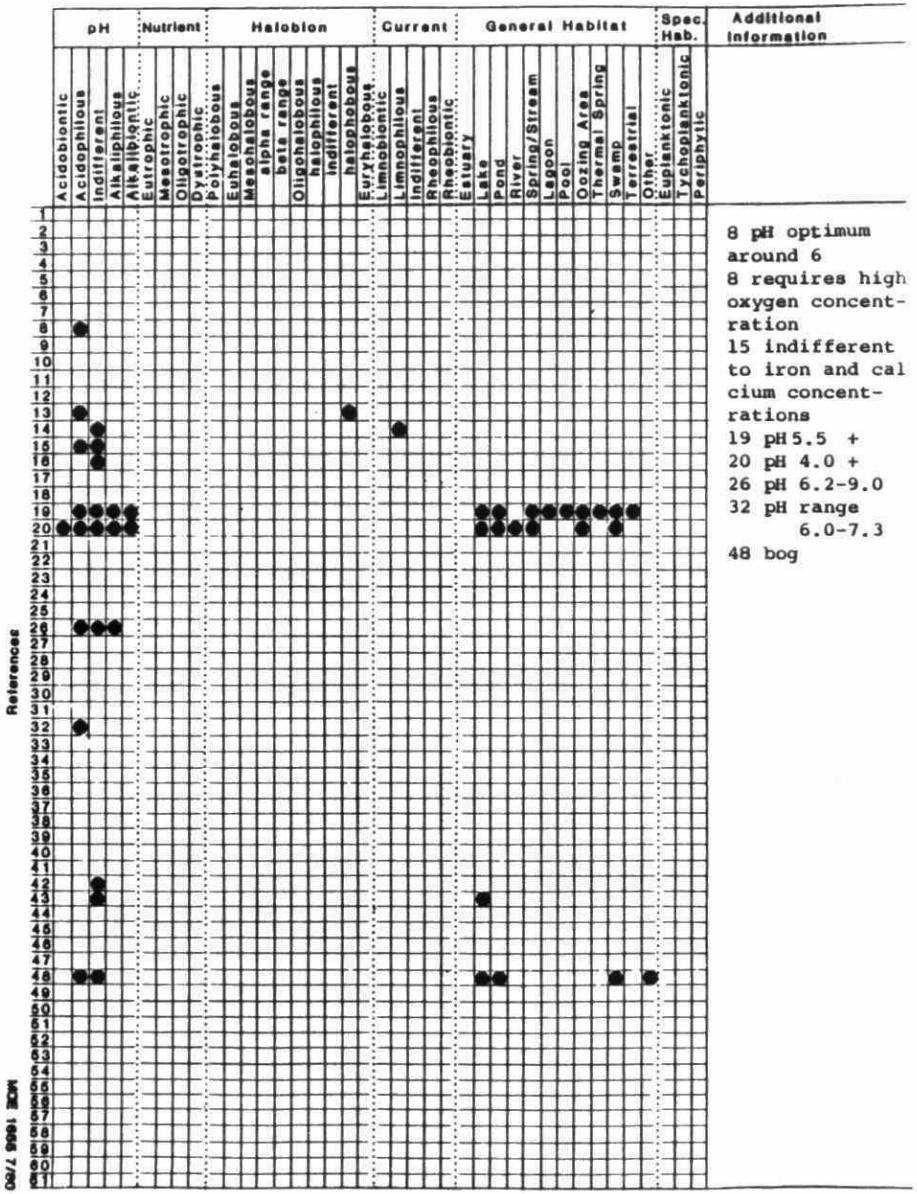
Synonym Cocconeis minuta var. alpestris Cl.



Ministry of the Environment
Ontario

Taxon Achnanthes flexella (Kutz.) Brun. var. flexella

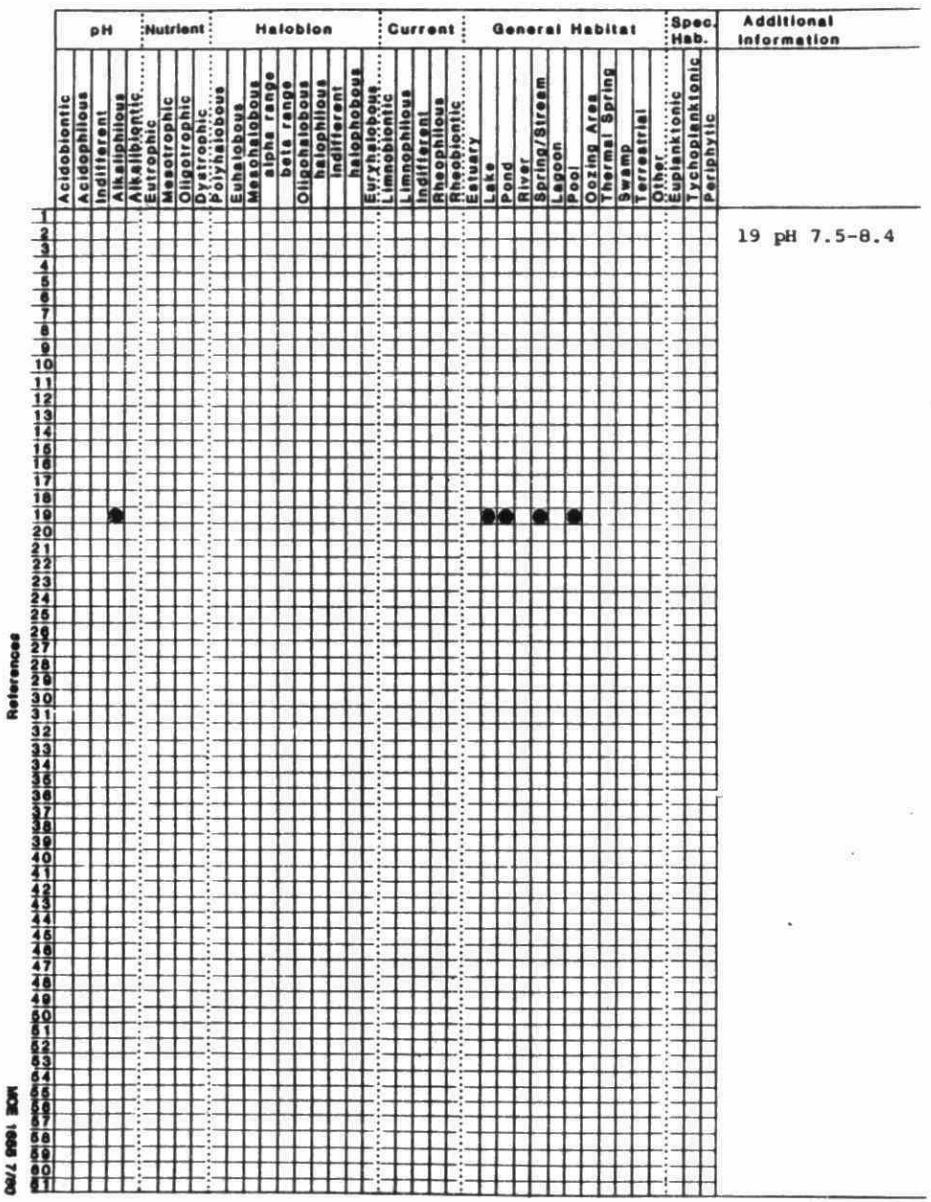
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes fragilarioides Peter.

Synonym Fragilaria nodosa Cl.



Ministry of the Environment
Ontario

Taxon Achnanthes hauckiana Grun.

Synonym

	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
1																																							
2																																							19 pH 9.0
3																																							20 pH 8.0
4																																							48 most common
5																																							in slightly to
6																																							moderately brac
7																																							ish water, also
8																																							reported from i
9																																							land freshwater
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References

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes gracillima Hust.

Synonym

	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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2																																							19 pH 6.5-6.9
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References

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes holstii Cl.

Synonym

References	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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19 pH 5.5-5.9
6.5-6.9
7.0-7.4
8.5-8.9

NOE 1988 7/90

Ministry of the Environment
Ontario

Taxon Achnanthes hungarica (Grun.) Grun.

Synonym

References	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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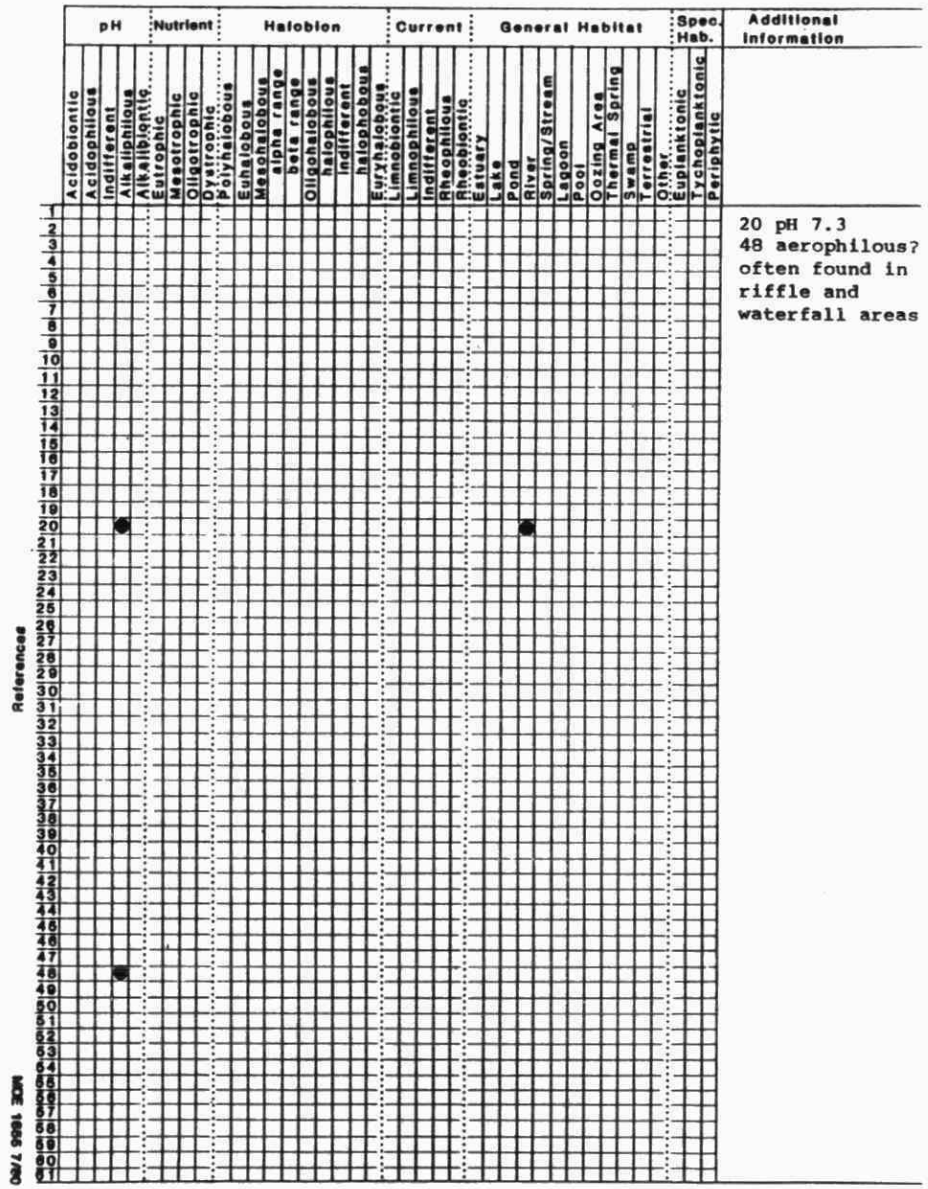
8 pH optimum around 8.5
8 can only thri in oxygen saturation
20 pH 6.6 + 25,27 cosmopolitan
25,32 pH range 6.4-8.3
29 beta-mesosaprobic
29 often associated with aquatic plants especially Lemna
48 fall maximum
48 occasionally in flowing water

NOE 1988 7/90

Ministry of the Environment
Ontario

Taxon Achnanthes hustedtii (Krasske) Reim.

Synonym Cocconeis hustedtii Krasske



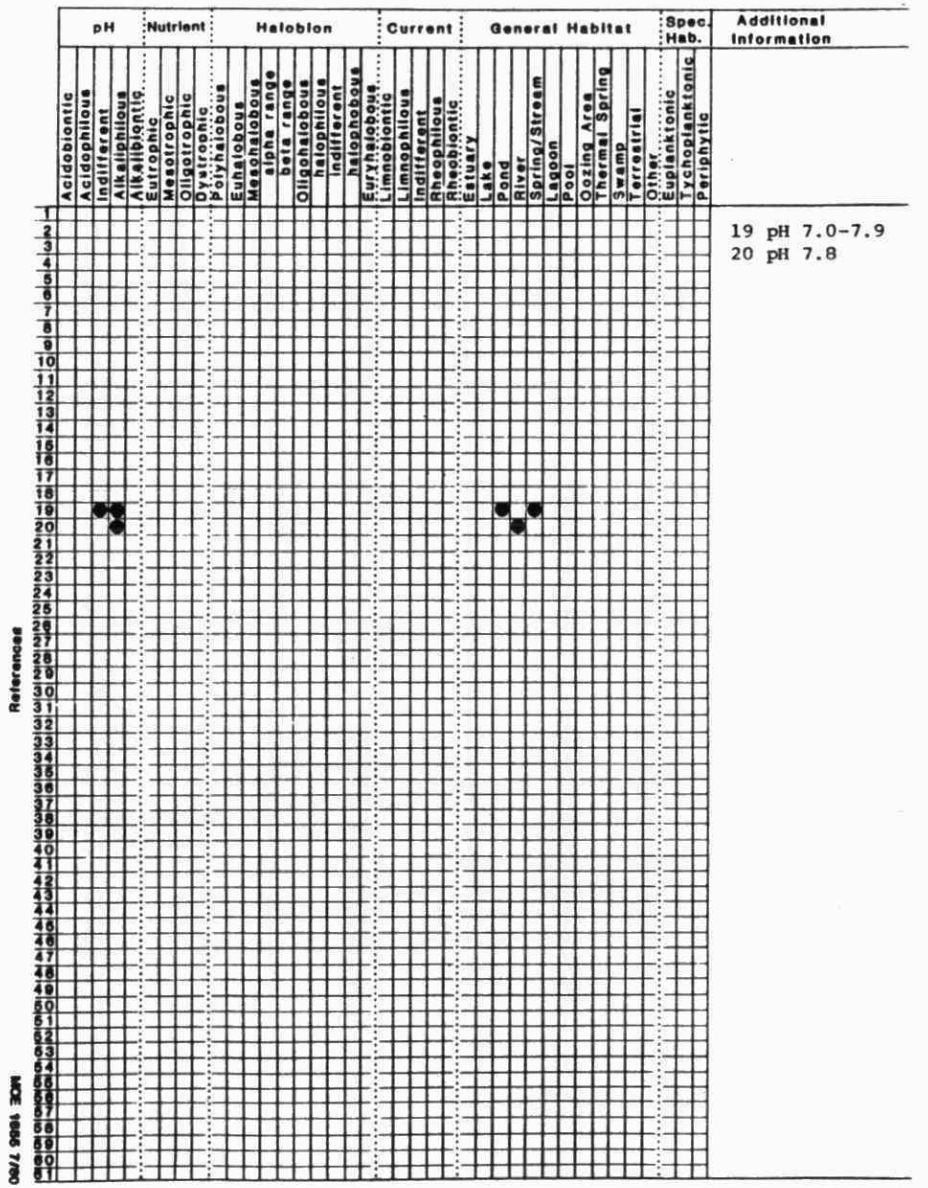
Additional Information

20 pH 7.3
48 aerophilous? often found in riffle and waterfall areas

Ministry of the Environment
Ontario

Taxon Achnanthes kolbei Hust.

Synonym



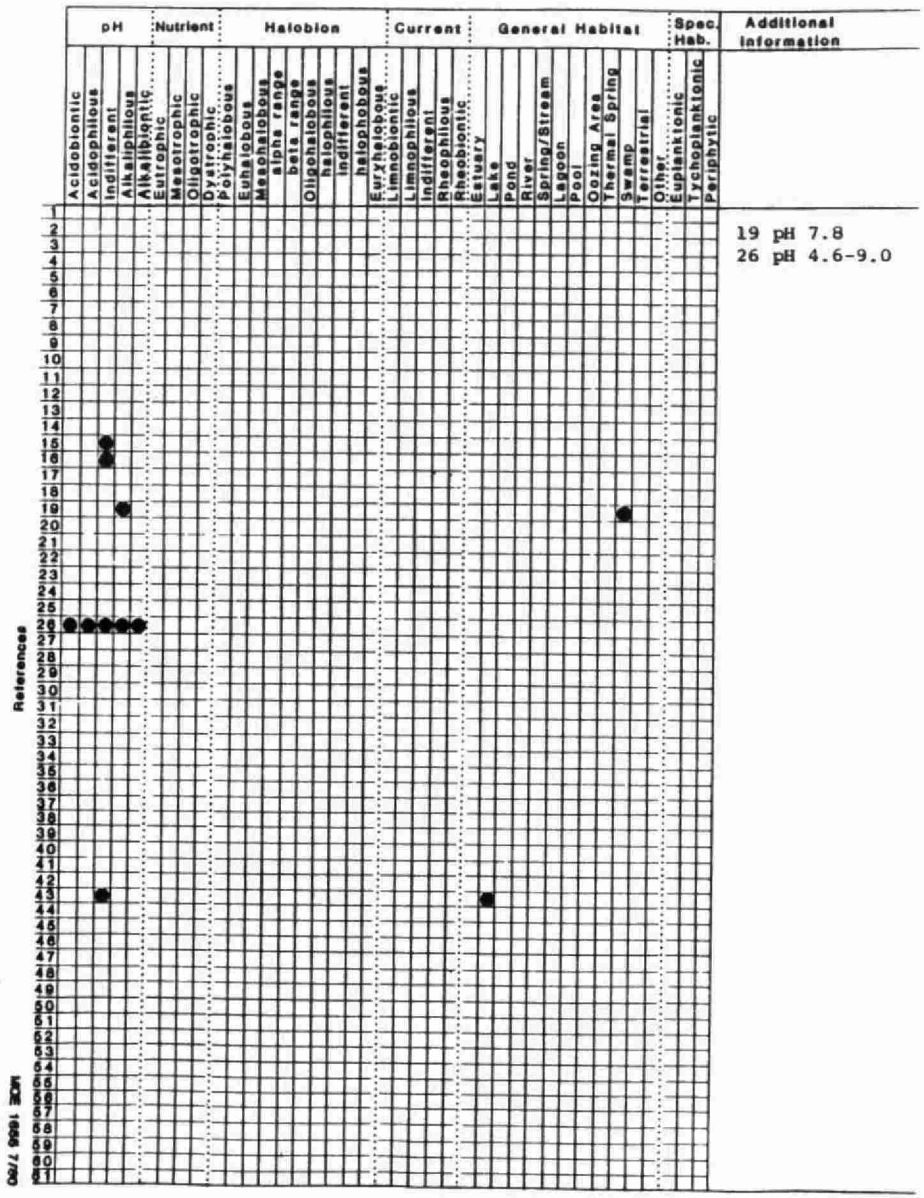
Additional Information

19 pH 7.0-7.9
20 pH 7.8

Ministry of the Environment
Ontario

Taxon Achnanthes kryophila Peter.

Synonym

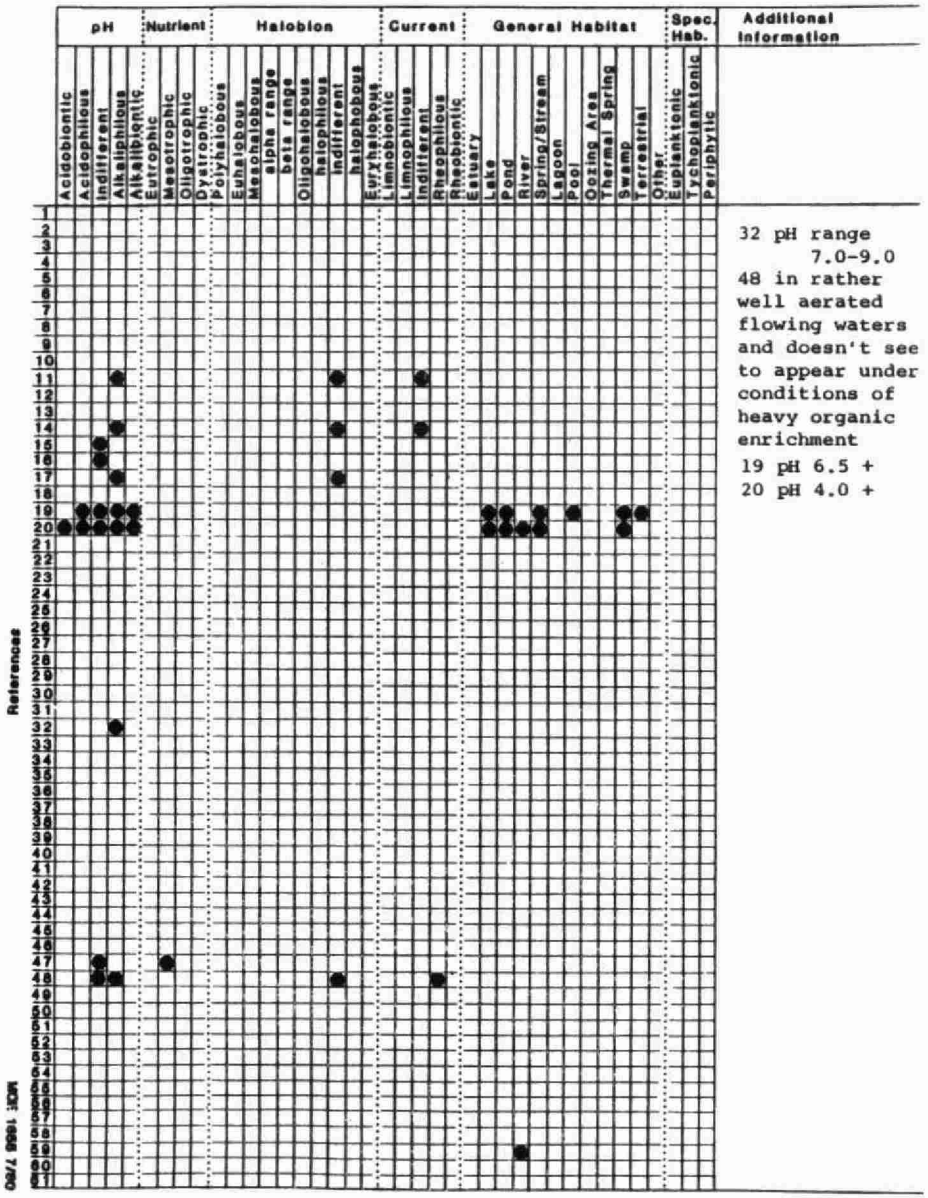


19 pH 7.8
26 pH 4.6-9.0

Ministry of the Environment
Ontario

Taxon Achnanthes lanceolata var. dubia Grun.

Synonym Achnanthes lanceolata var. rostrata (Østr.) Hust.

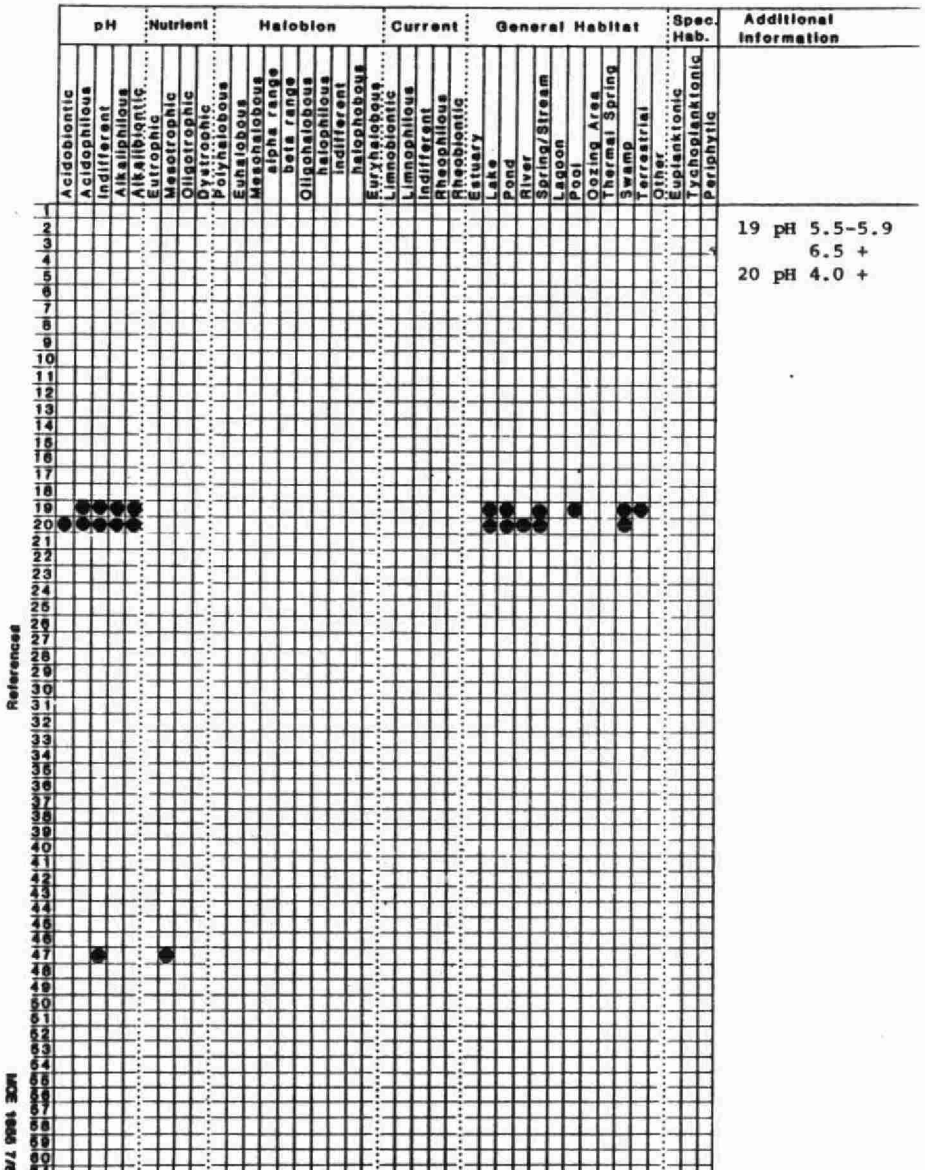


32 pH range 7.0-9.0
48 in rather well aerated flowing waters and doesn't see to appear under conditions of heavy organic enrichment
19 pH 6.5 +
20 pH 4.0 +

Ministry of the Environment
Ontario

Taxon , Achnanthes lanceolata var. elliptica Hust.

Synonym Achnanthes lanceolata f. elliptica Hust. ? 19,20

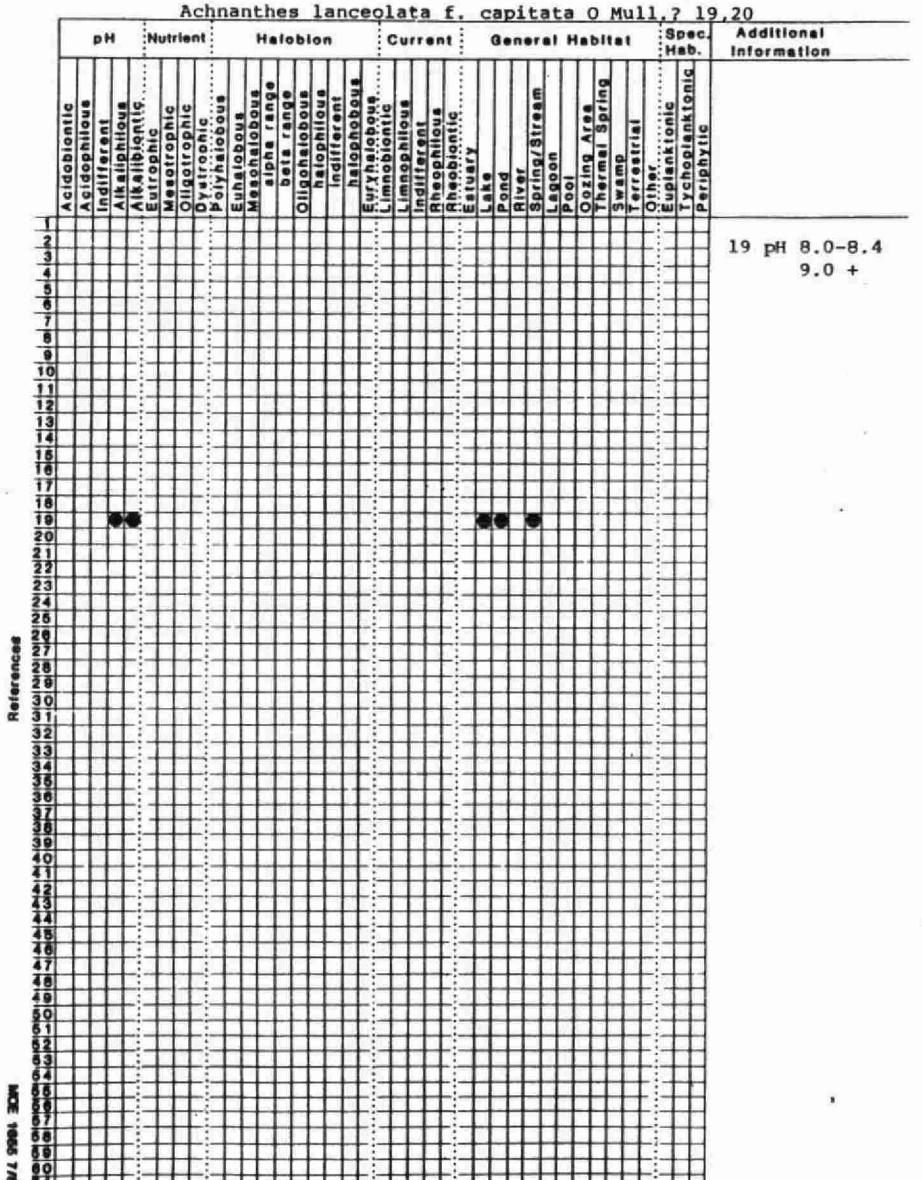


Ministry of the Environment
Ontario

Taxon Achnanthes lanceolata var. haynaldii (Istv.-Schaarsch.) Cl.

Synonym Achnanthes lanceolata var. capitata O. Mull.

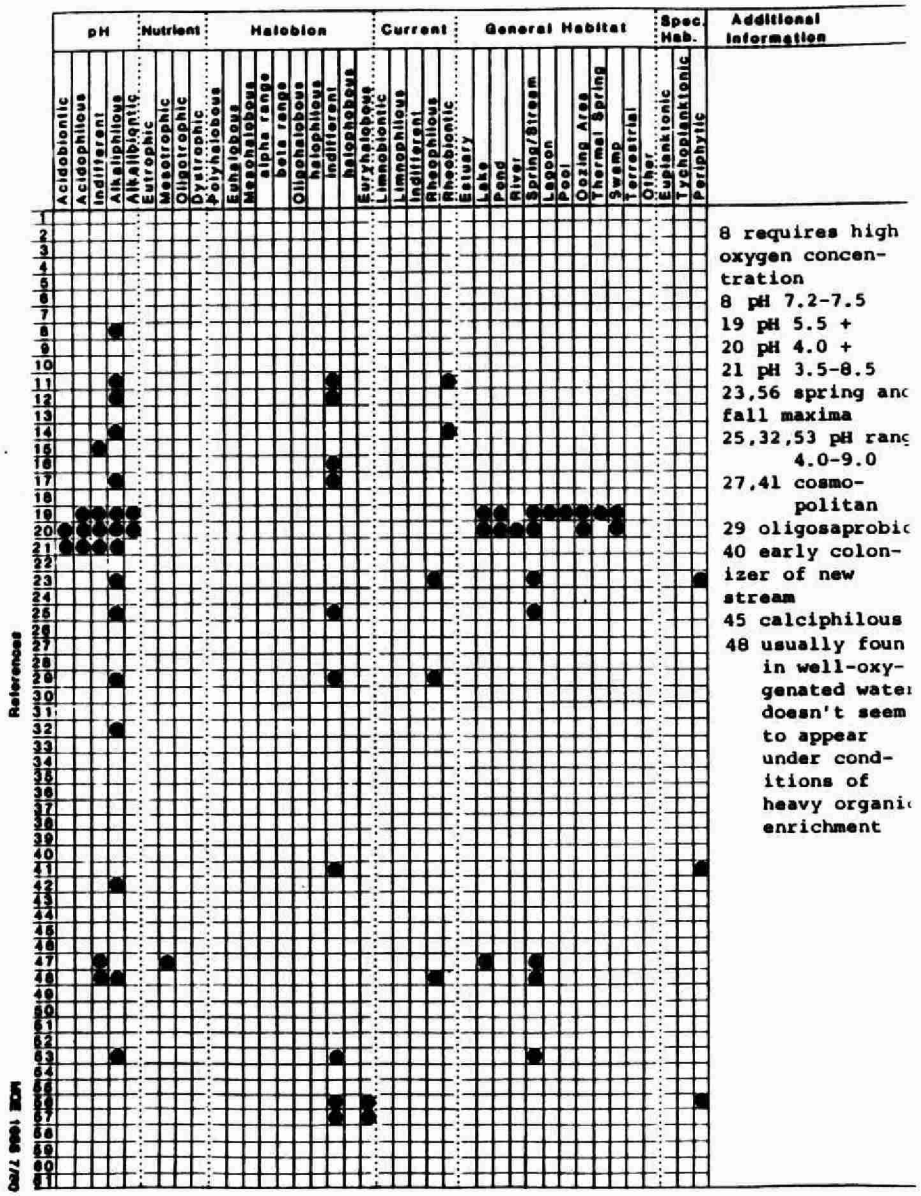
Achnanthes lanceolata f. capitata O Mull,? 19,20



Ministry of the Environment
Ontario

Taxon Achnanthes lanceolata (Breb.) Grun. var. lanceolata

Synonym Achnanthes lanceolata var. ventricosa Hust.

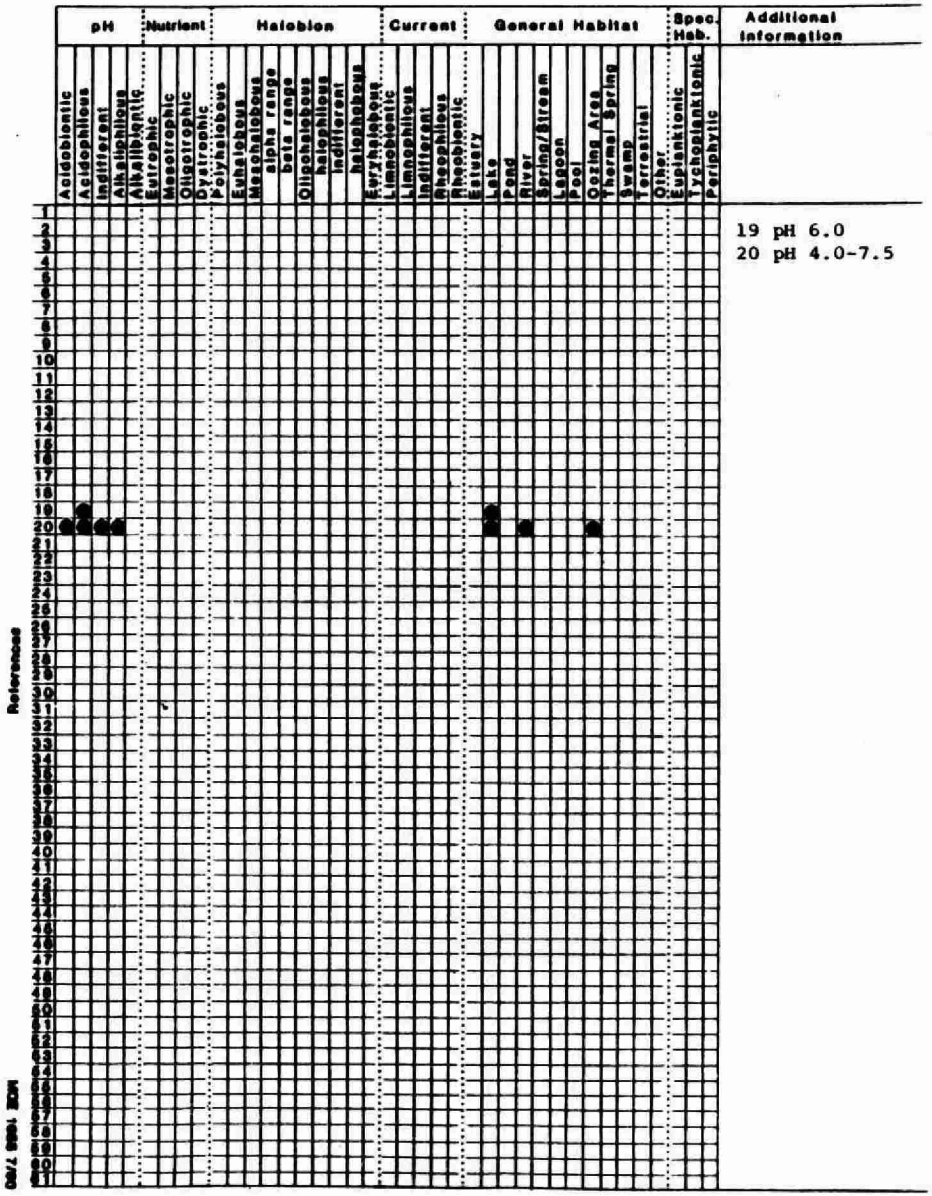


8 requires high oxygen concentration
8 pH 7.2-7.5
19 pH 5.5 +
20 pH 4.0 +
21 pH 3.5-8.5
23,56 spring and fall maxima
25,32,53 pH range 4.0-9.0
27,41 cosmopolitan
29 oligosaprobic
40 early colonizer of new stream
45 calciphilous
48 usually found in well-oxygenated water, doesn't seem to appear under conditions of heavy organic enrichment

Ministry of the Environment
Ontario

Taxon Achnanthes lapidosa Krasske

Synonym

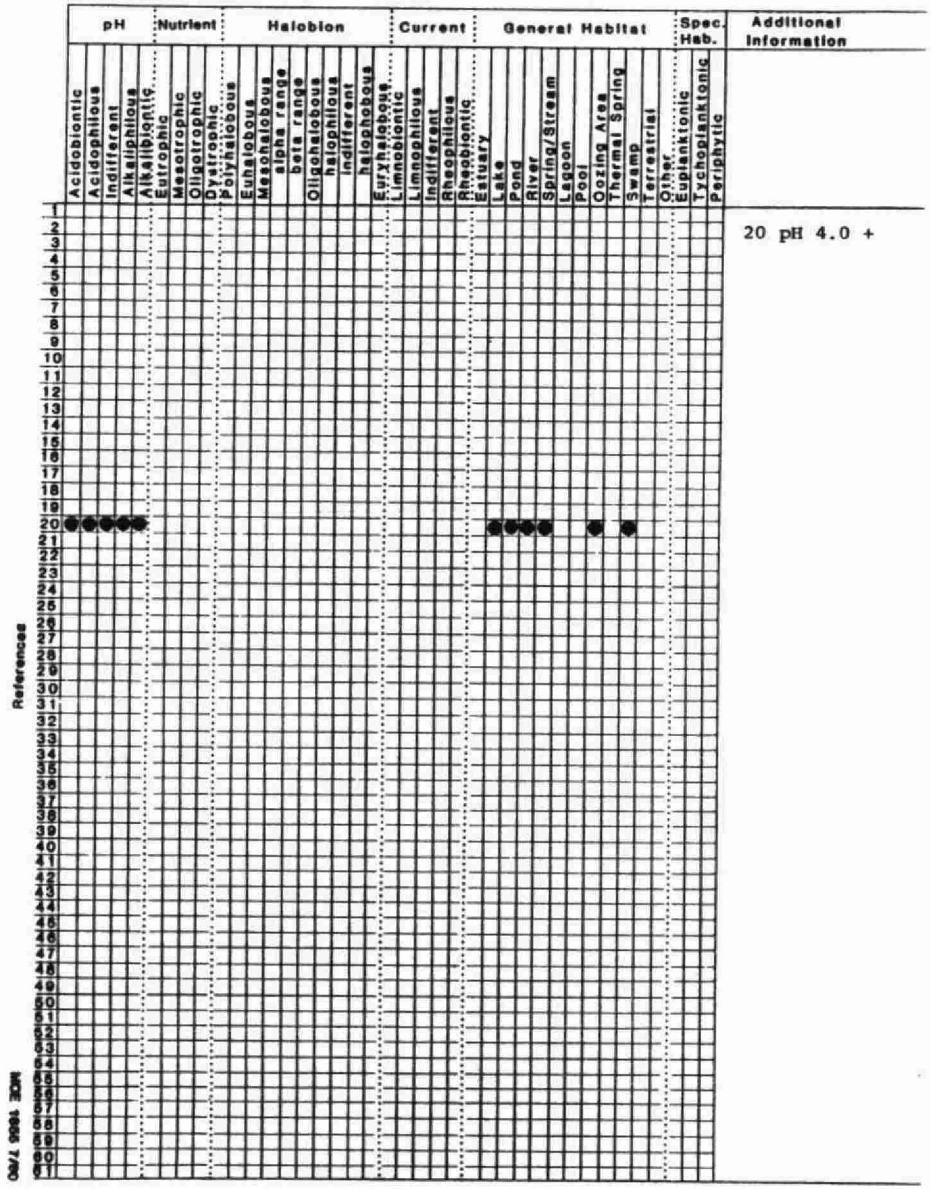


19 pH 6.0
20 pH 4.0-7.5

Ministry of the Environment
Ontario

Taxon Achnanthes lapponica (Hust.) Hust.

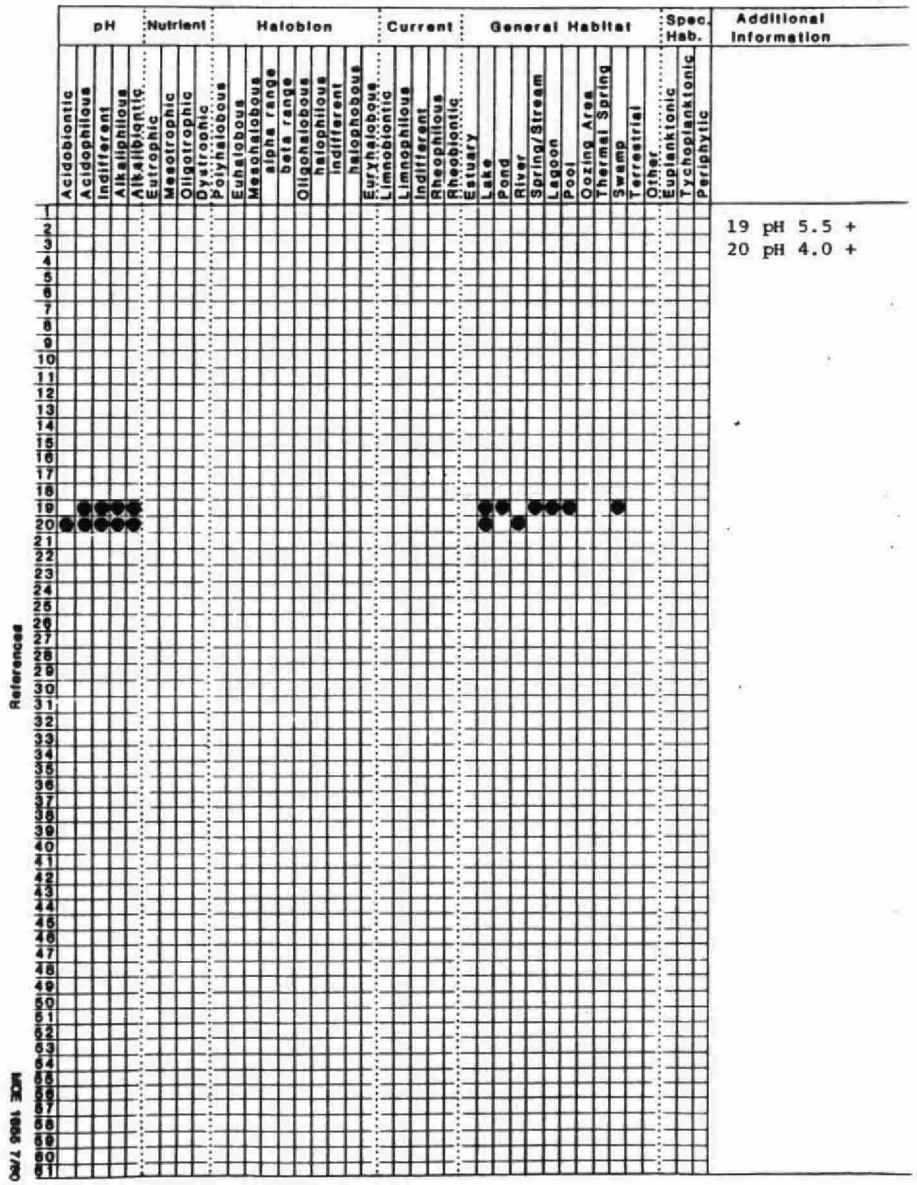
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes laterostrata Hust.

Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes lemmermanni Hust.

Synonym

	pH					Nutrient				Halobion									Current				General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
19	●		●																						●													19 pH 8.0
48																	●																					48 so far only found from fres to slightly brackish water coastal areas

References

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes levanderi var. helvetica Hust.

Synonym

	pH					Nutrient				Halobion									Current				General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
19	●																											●											19 pH 6.7

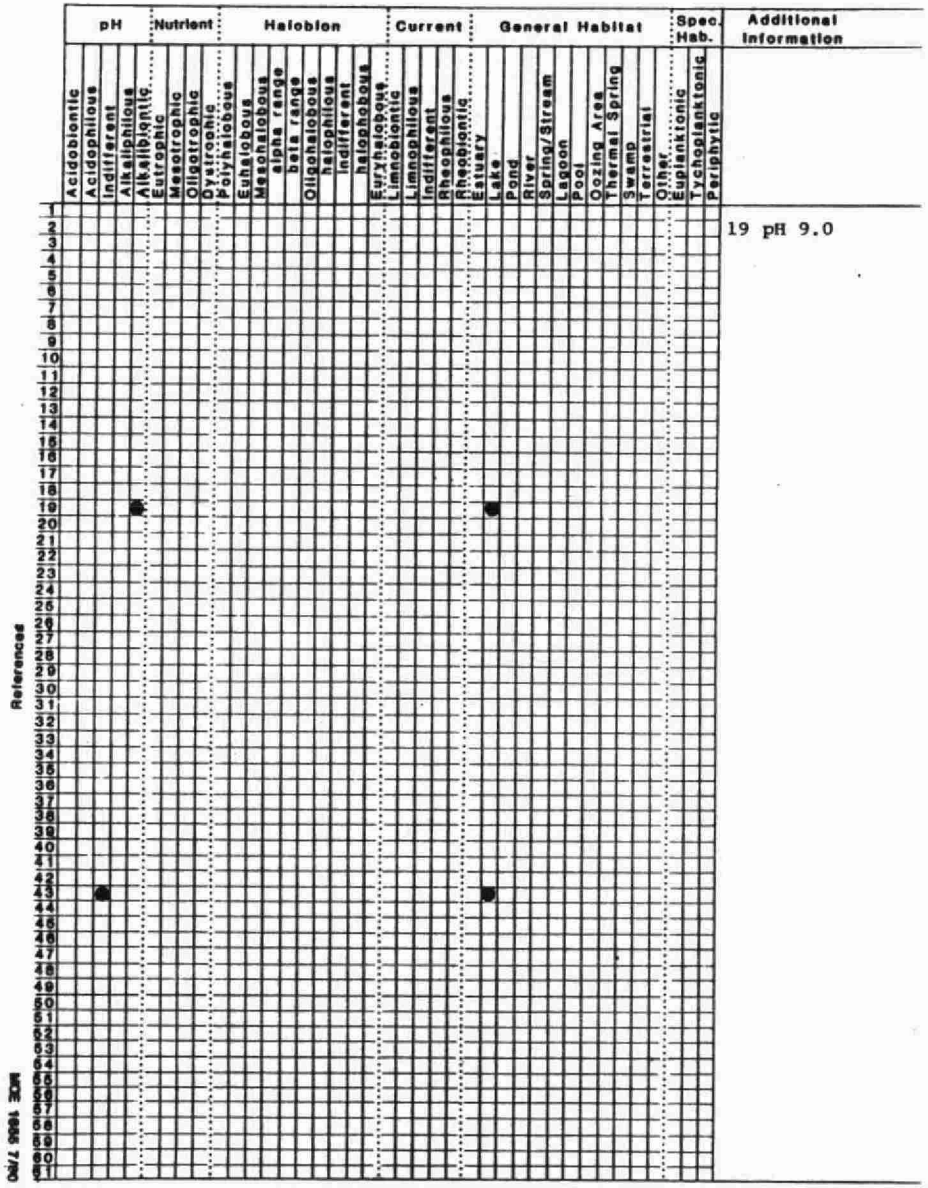
References

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes levanderi Hust. var. levanderi

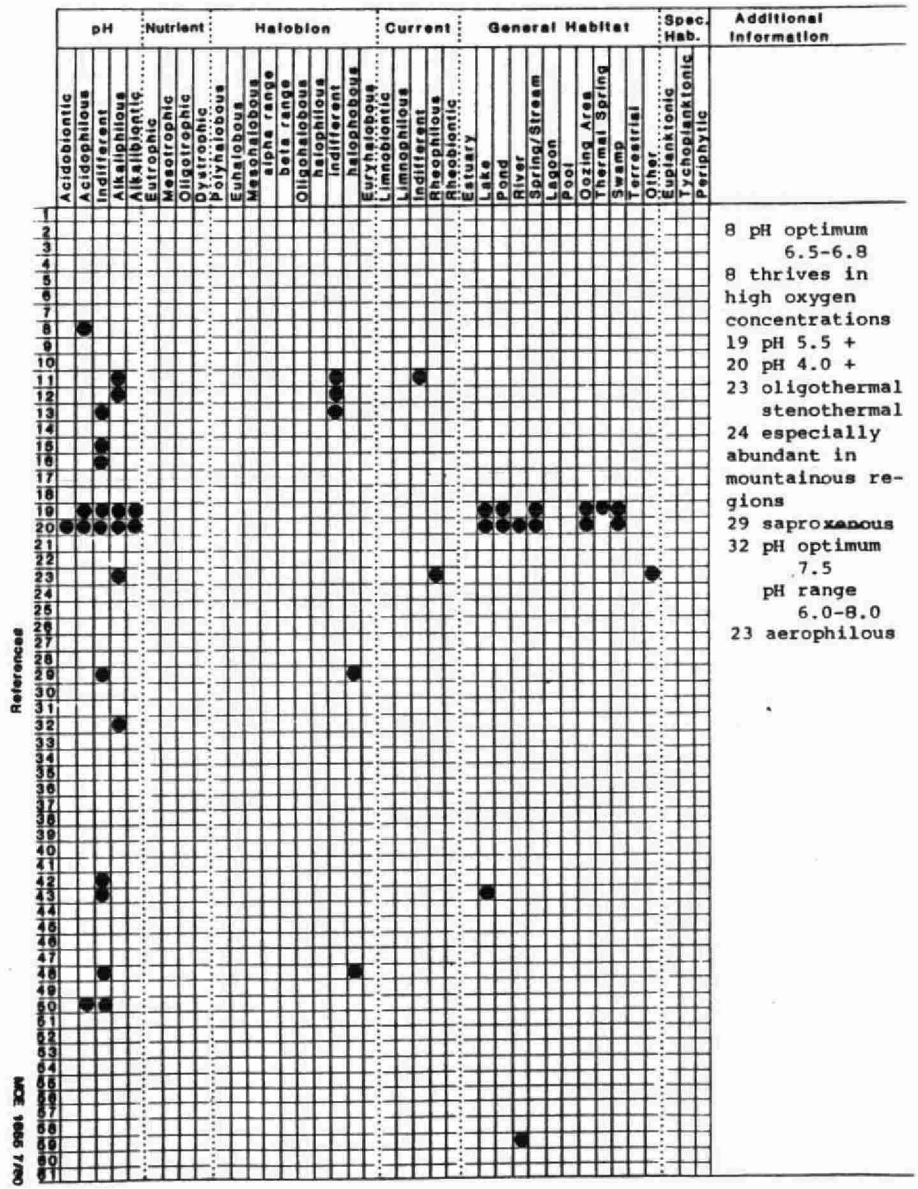
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes linearis (W. Sm.) Grun.

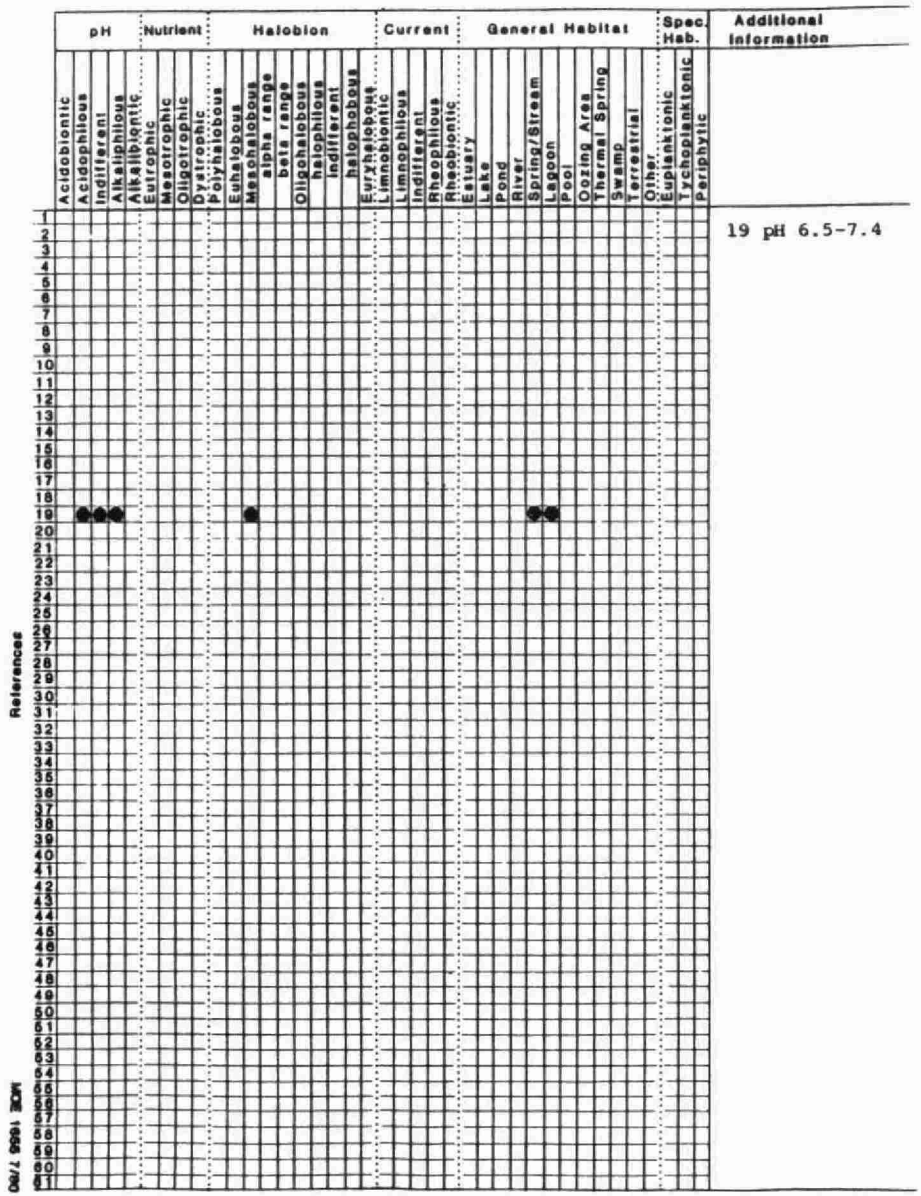
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes linkei Hust.

Synonym

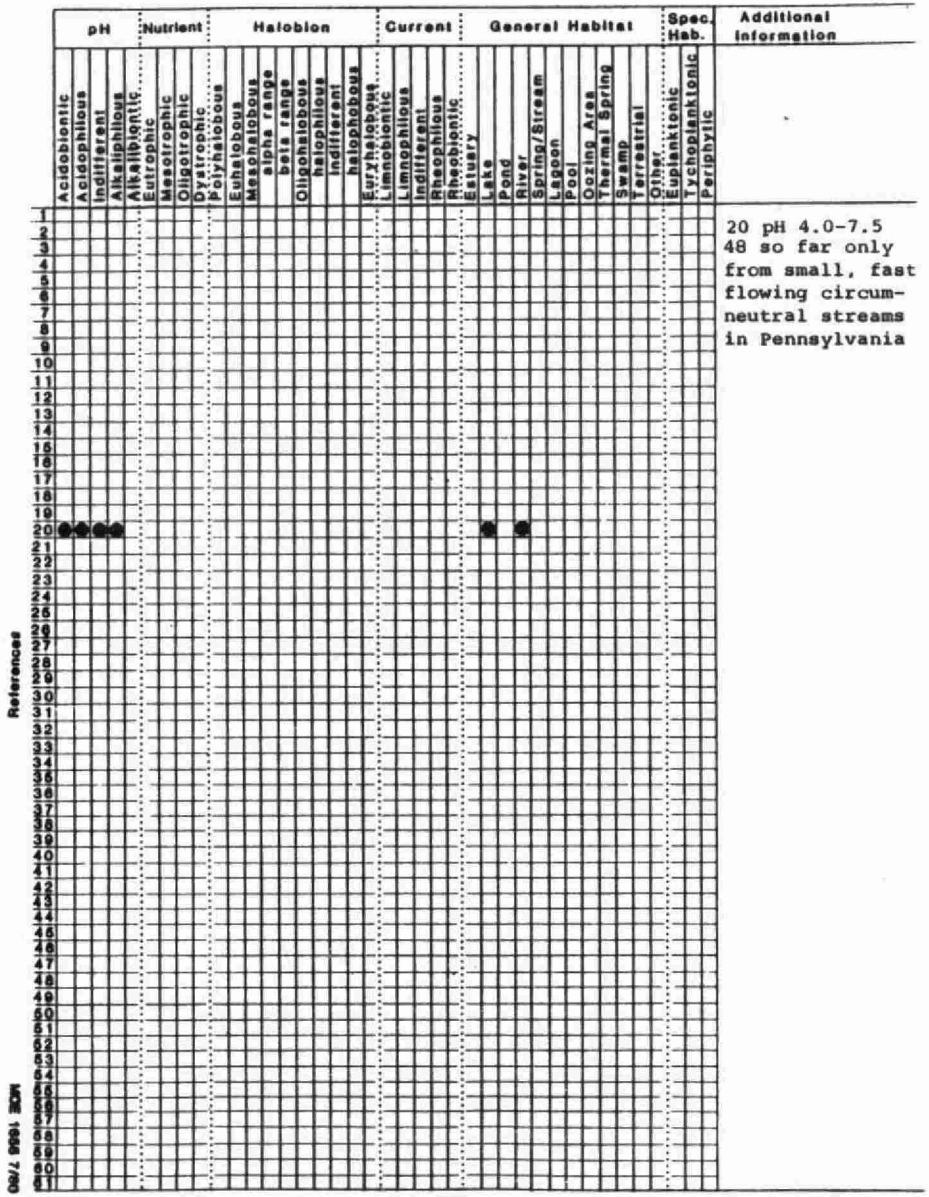


19 pH 6.5-7.4

Ministry of the Environment
Ontario

Taxon Achnanthes linearis var. pusilla Grun.

Synonym

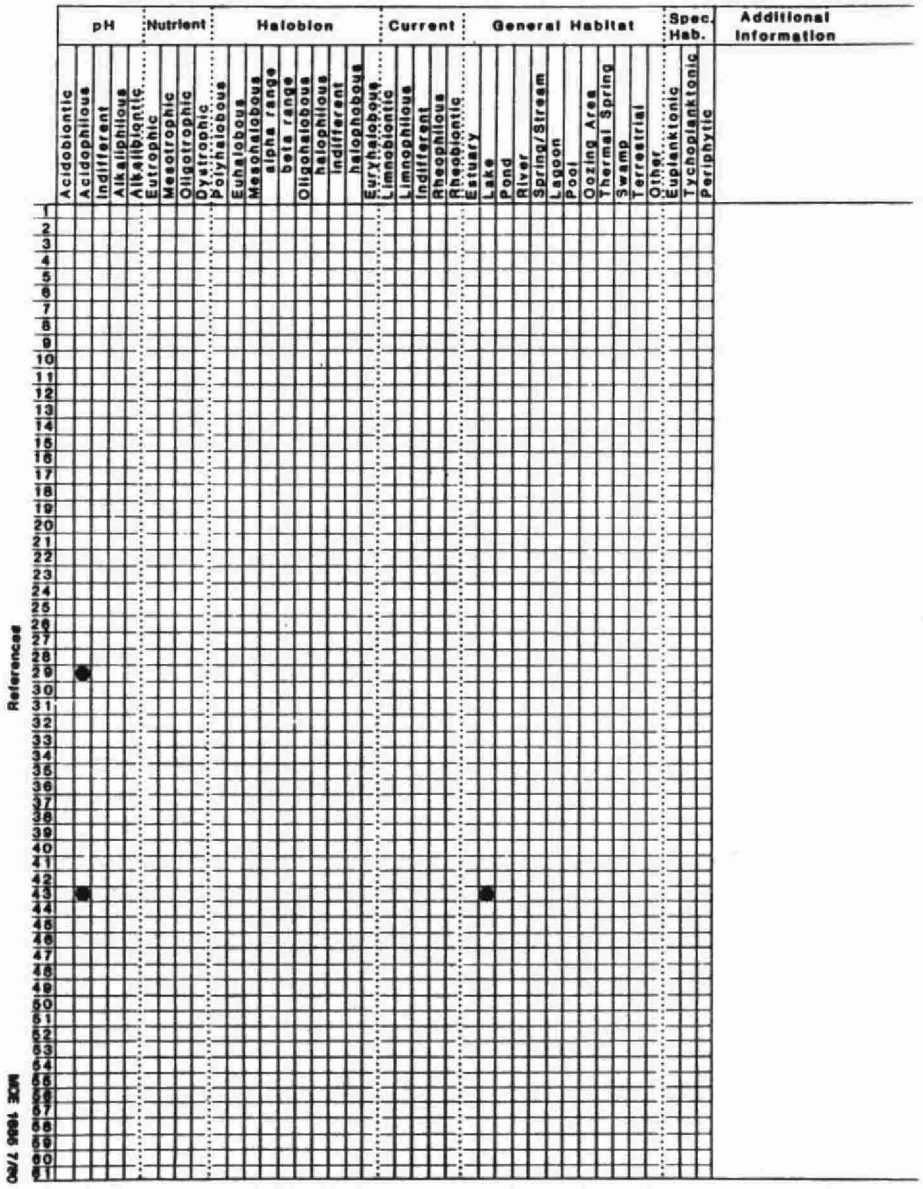


20 pH 4.0-7.5
48 so far only from small, fast flowing circum-neutral streams in Pennsylvania

Ministry of the Environment
Ontario

Taxon Achnanthes lutheri Hust.

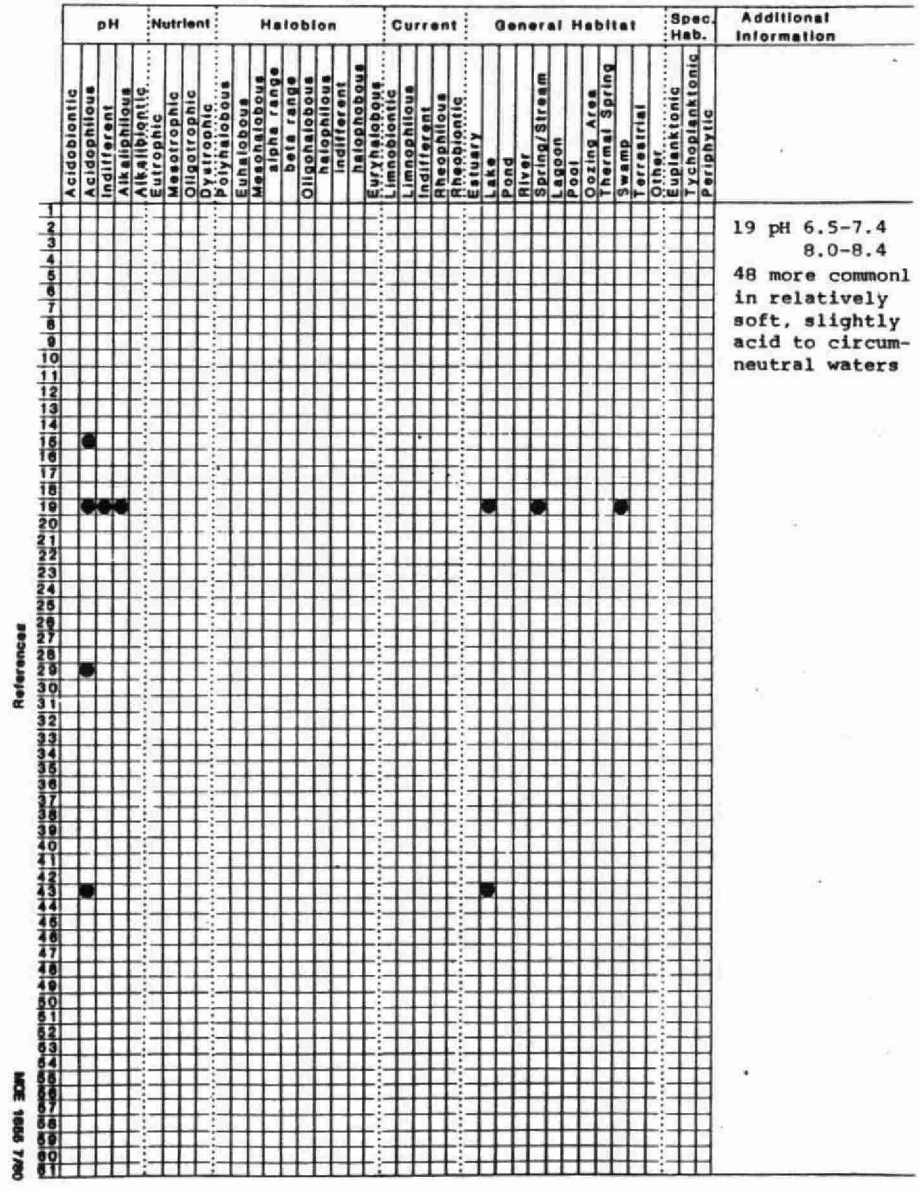
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes marginulata Grun.

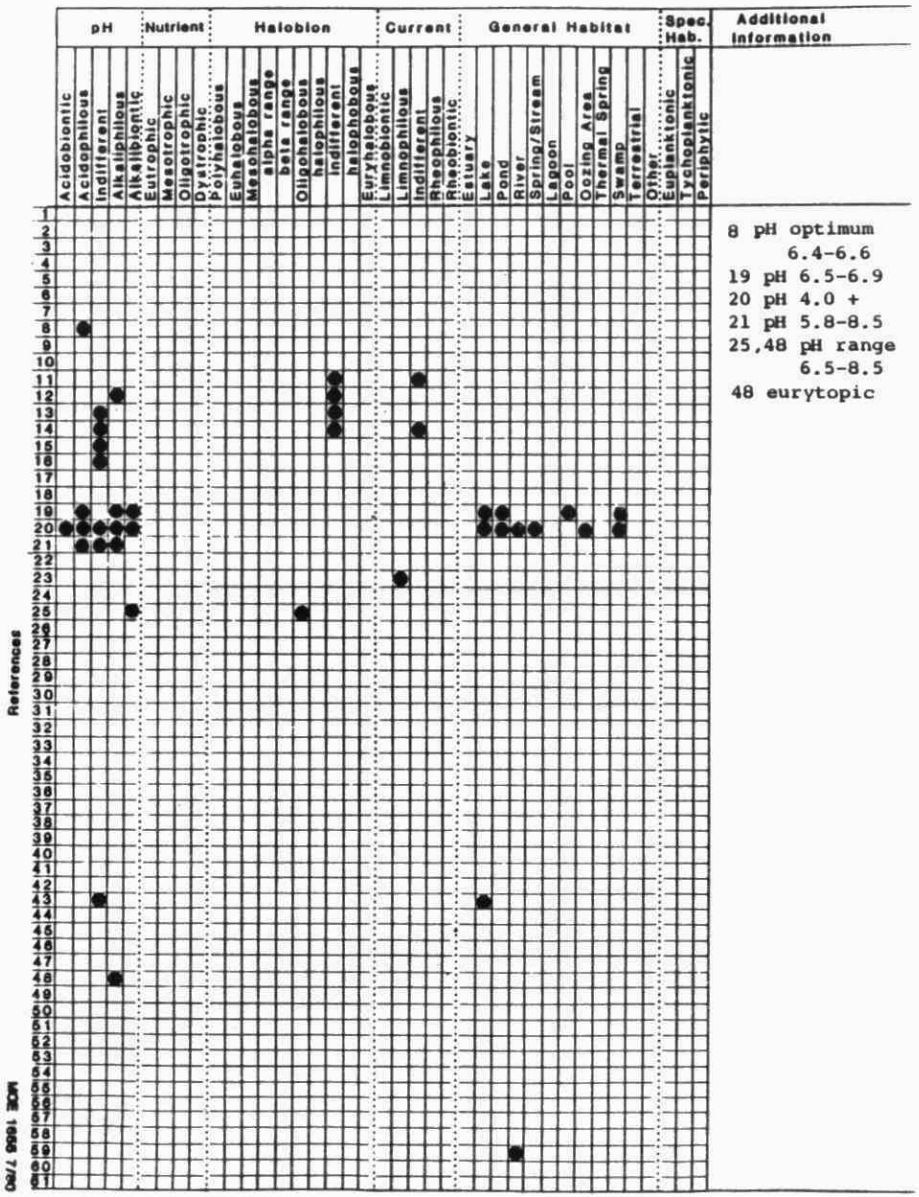
Synonym



19 pH 6.5-7.4
8.0-8.4
48 more commonl in relatively soft, slightly acid to circum-neutral waters

Taxon Achnanthes microcephala (Kutz.) Grun.

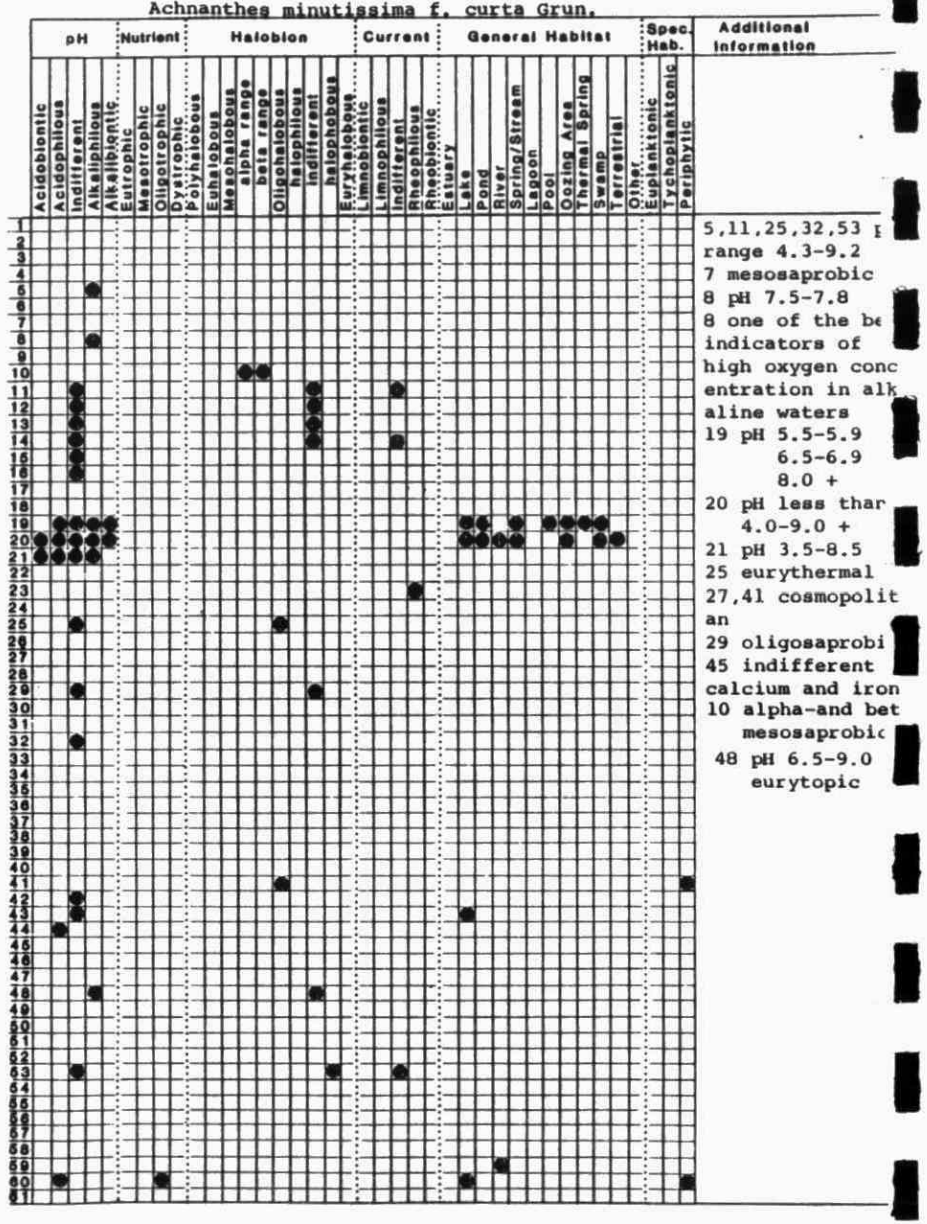
Synonym



8 pH optimum 6.4-6.6
19 pH 6.5-6.9
20 pH 4.0 +
21 pH 5.8-8.5
25,48 pH range 6.5-8.5
48 eurytopic

Taxon Achnanthes minutissima Kutz.

Synonym Achnanthes minutissima var. cryptocephala Grun. 48
Achnanthes minutissima f. curta Grun.



5,11,25,32,53 p
range 4.3-9.2
7 mesosaprobic
8 pH 7.5-7.8
8 one of the be
indicators of
high oxygen conc
entration in alk
aline waters
19 pH 5.5-5.9
6.5-6.9
8.0 +
20 pH less thar
4.0-9.0 +
21 pH 3.5-8.5
25 eurythermal
27,41 cosmopolit
an
29 oligosaprobi
45 indifferent
calcium and iron
10 alpha-and bet
mesosaprobic
48 pH 6.5-9.0
eurytopic

Ministry of the Environment
Ontario

Taxon Achnanthes nodosa Cl.

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes nollii Bock.

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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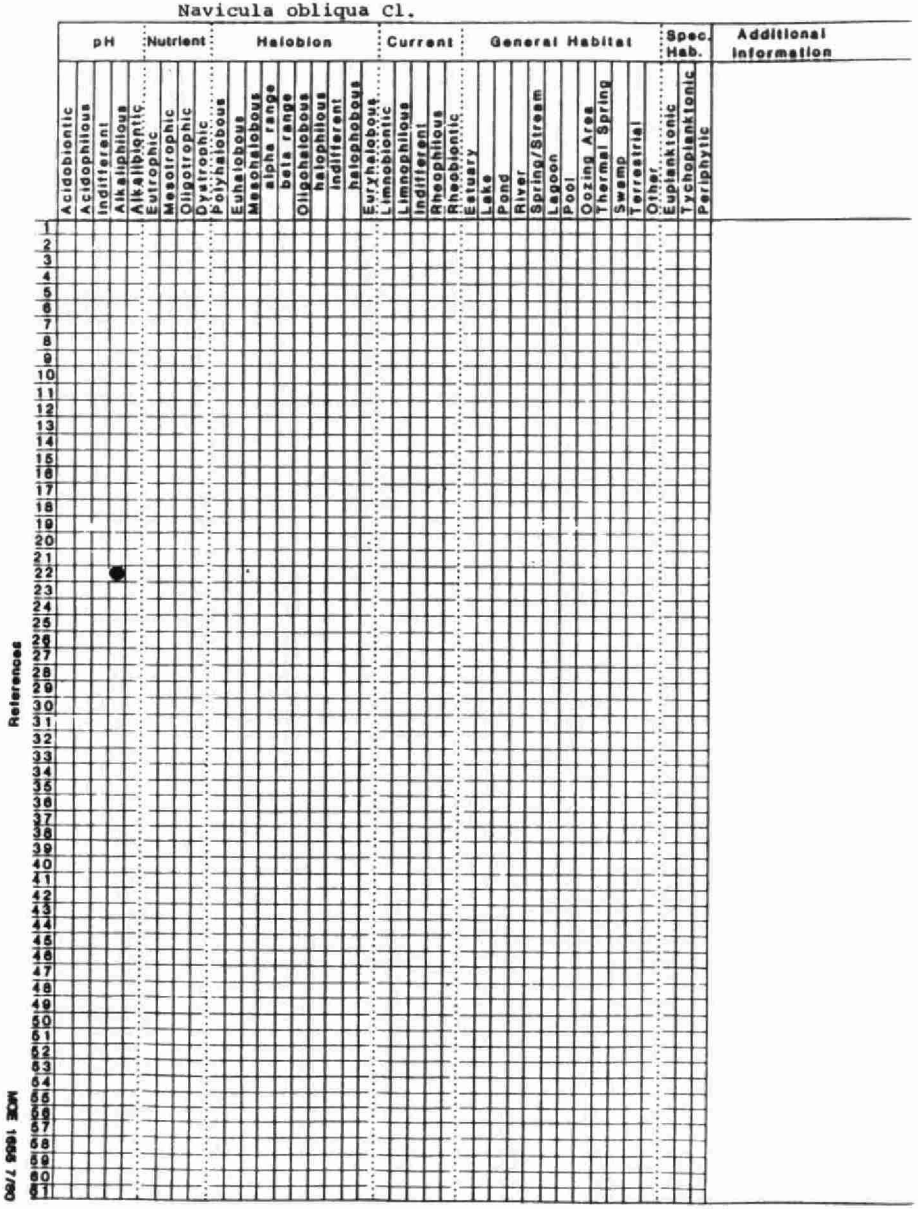
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Ontario

Taxon Achnanthes obliqua (Greg.) Hust.

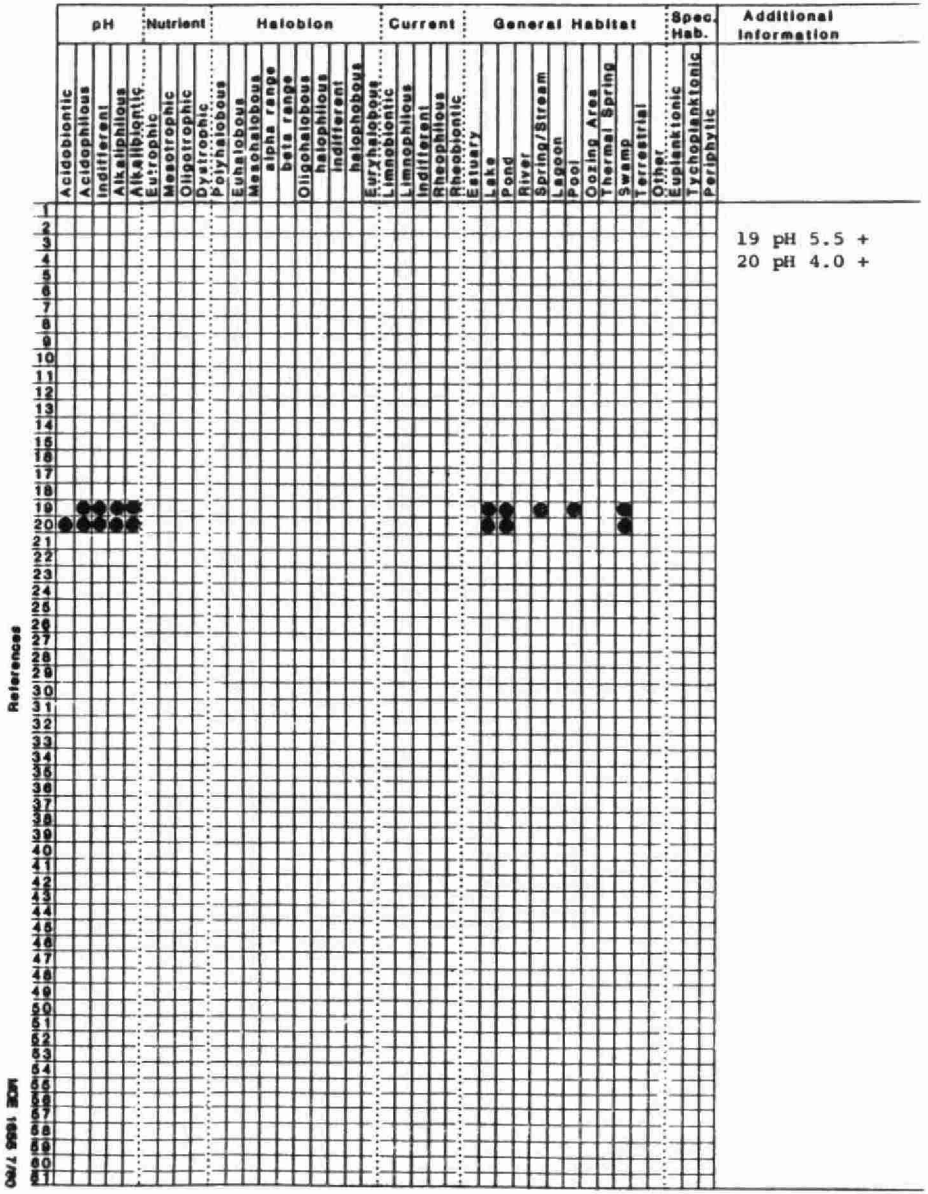
Synonym Stauroneis obliqua Greg.

Navicula obliqua Cl.



Taxon Achnanthes oestrupi (Cl.) Hust.

Synonym

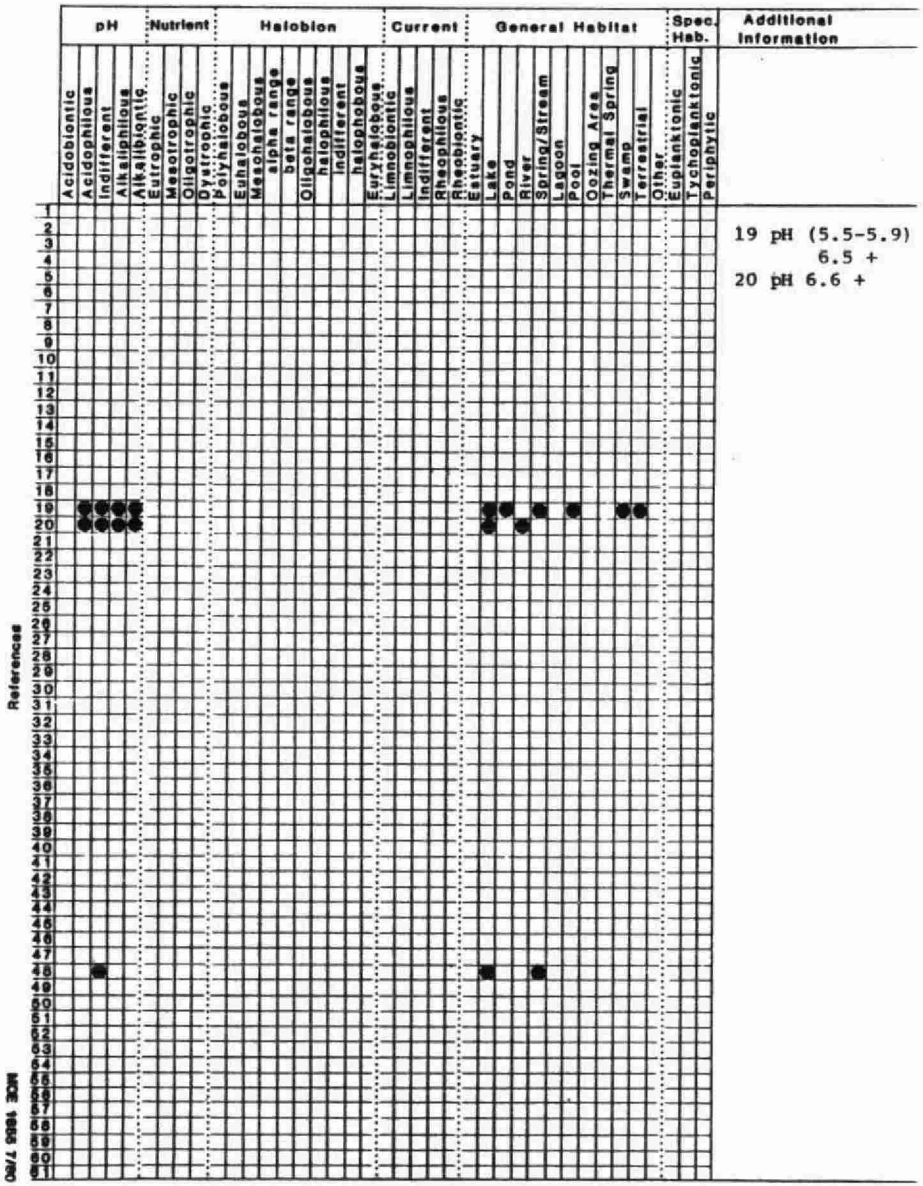


19 pH 5.5 +
20 pH 4.0 +

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Taxon Achnanthes peragalli Brun. + Herib.

Synonym



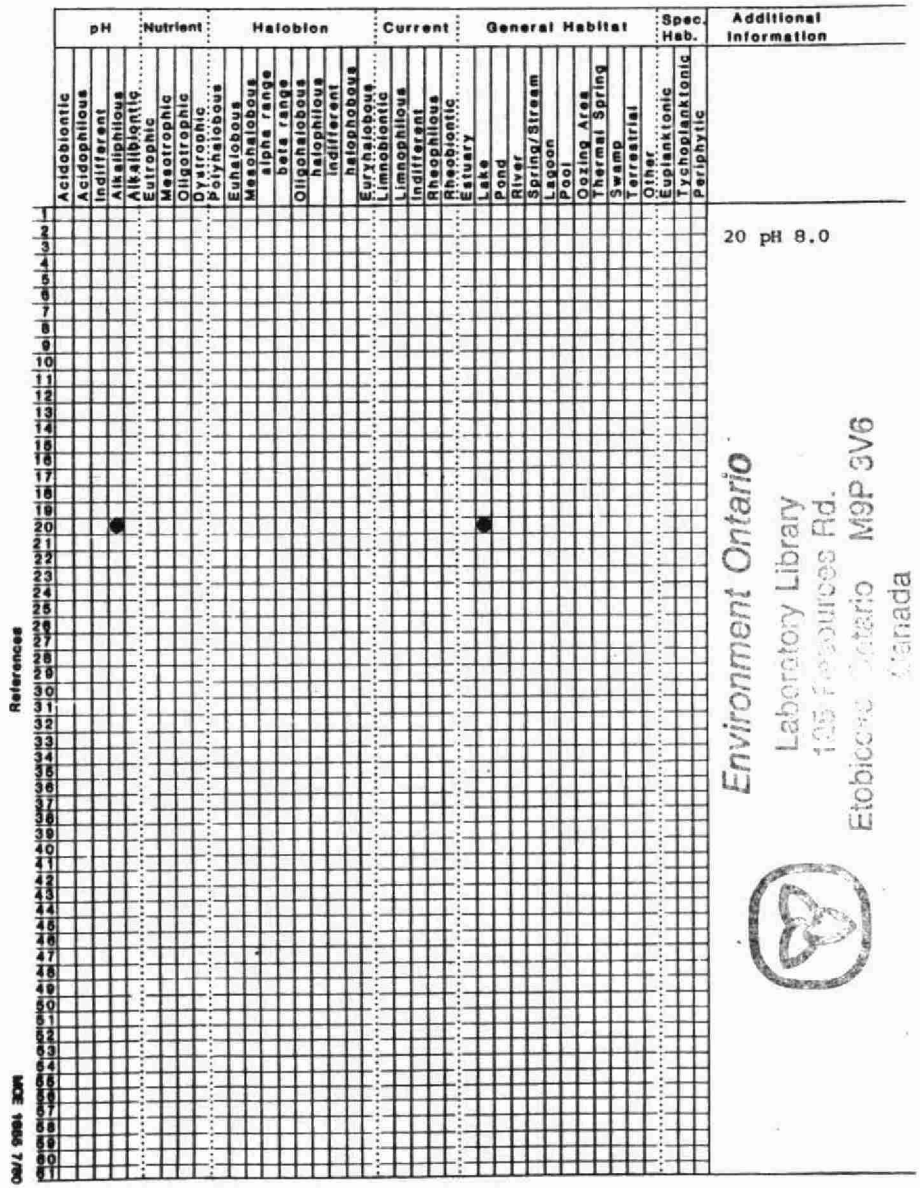
Additional Information

19 pH (5.5-5.9)
6.5 +
20 pH 6.6 +

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Taxon Achnanthes plonensis Hust.

Synonym



Additional Information

20 pH 8.0

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Laboratory Library
125 Resources Rd.
Etobicoke, Ontario M9P 3V6
Canada

Ministry of the Environment
Ontario

Taxon Achnanthes pseudotanensis Cl.

Synonym

	pH				Nutrient				Halobion											Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

NOE 1686 7/80

Ministry of the Environment
Ontario

Taxon Achnanthes pygmaea (Schum.) Cl.

Synonym

	pH				Nutrient				Halobion											Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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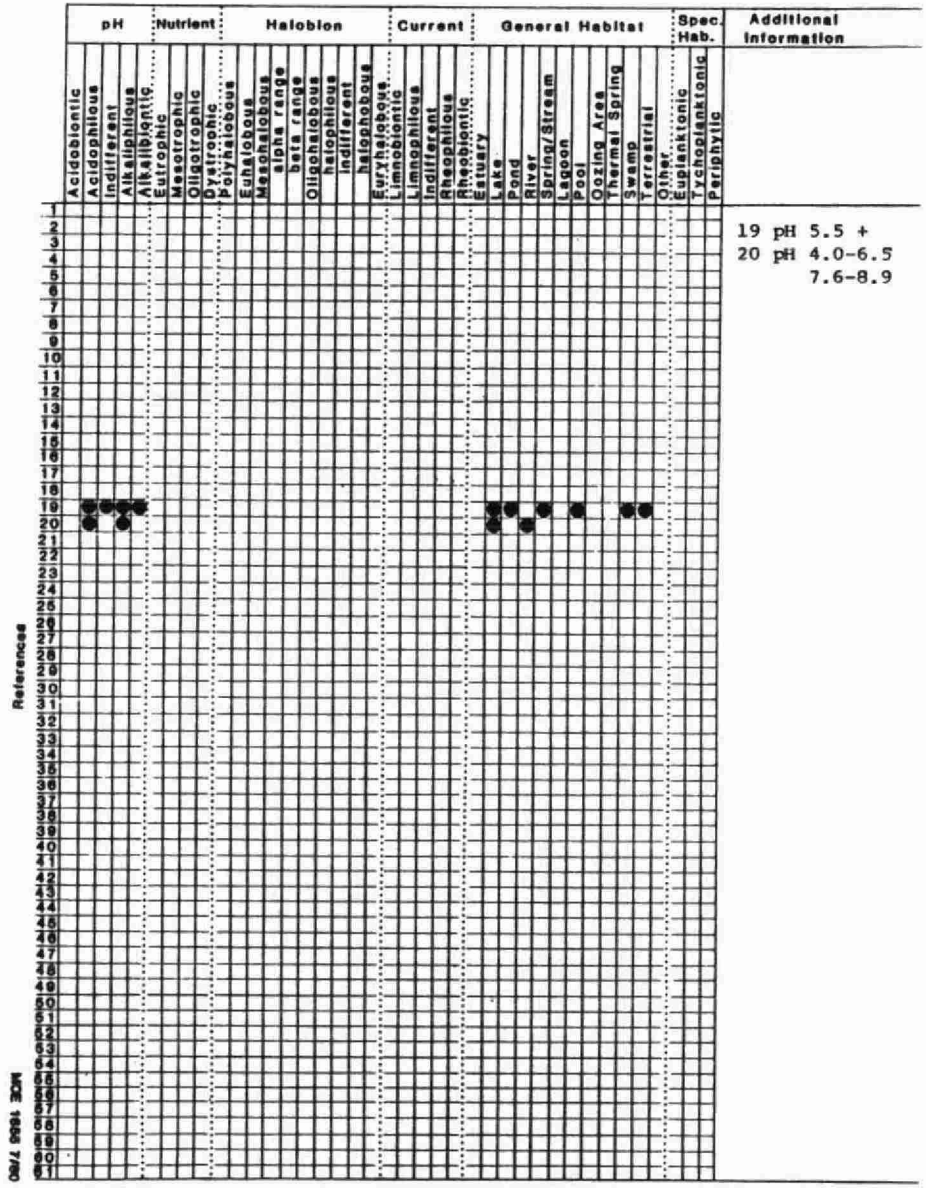
References

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Ministry of the Environment
Ontario

Taxon Achnanthes recurvata Hust.

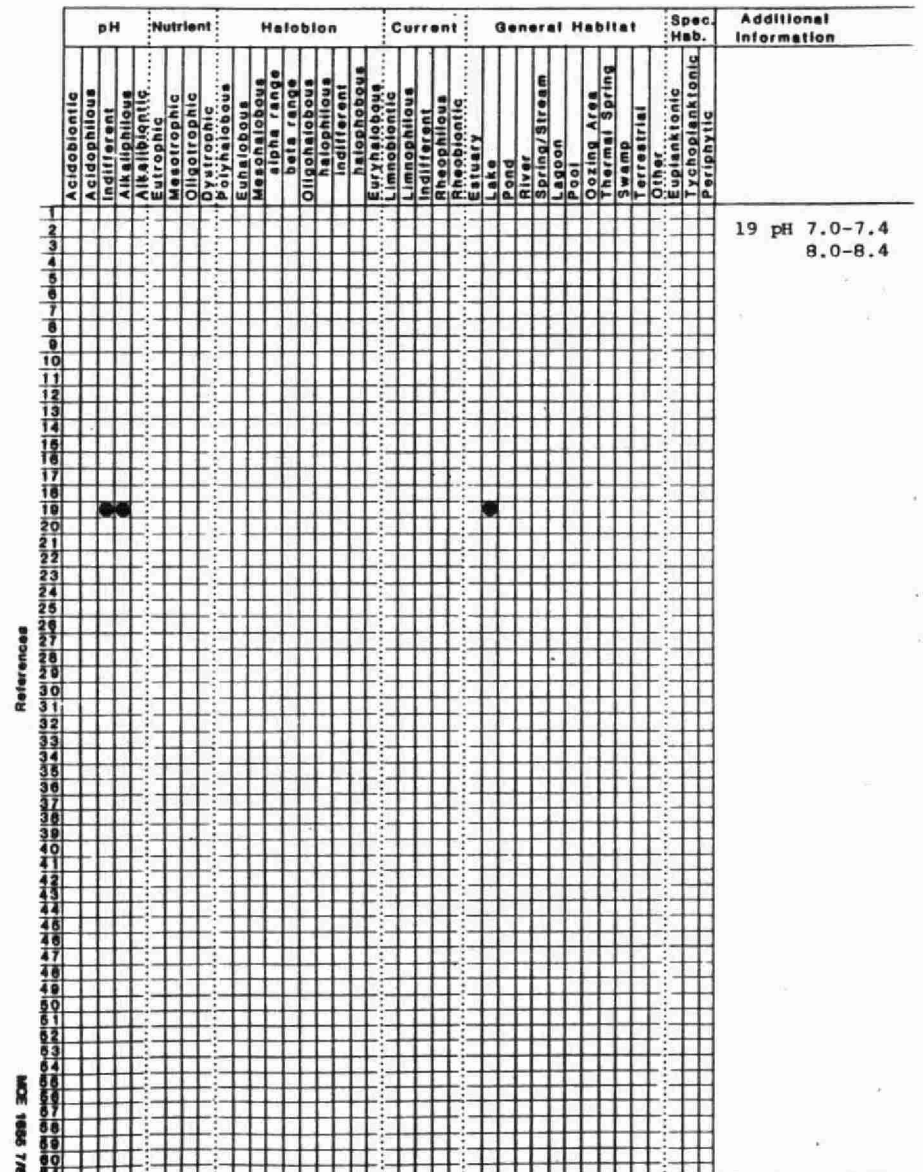
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes rostellata Cl.

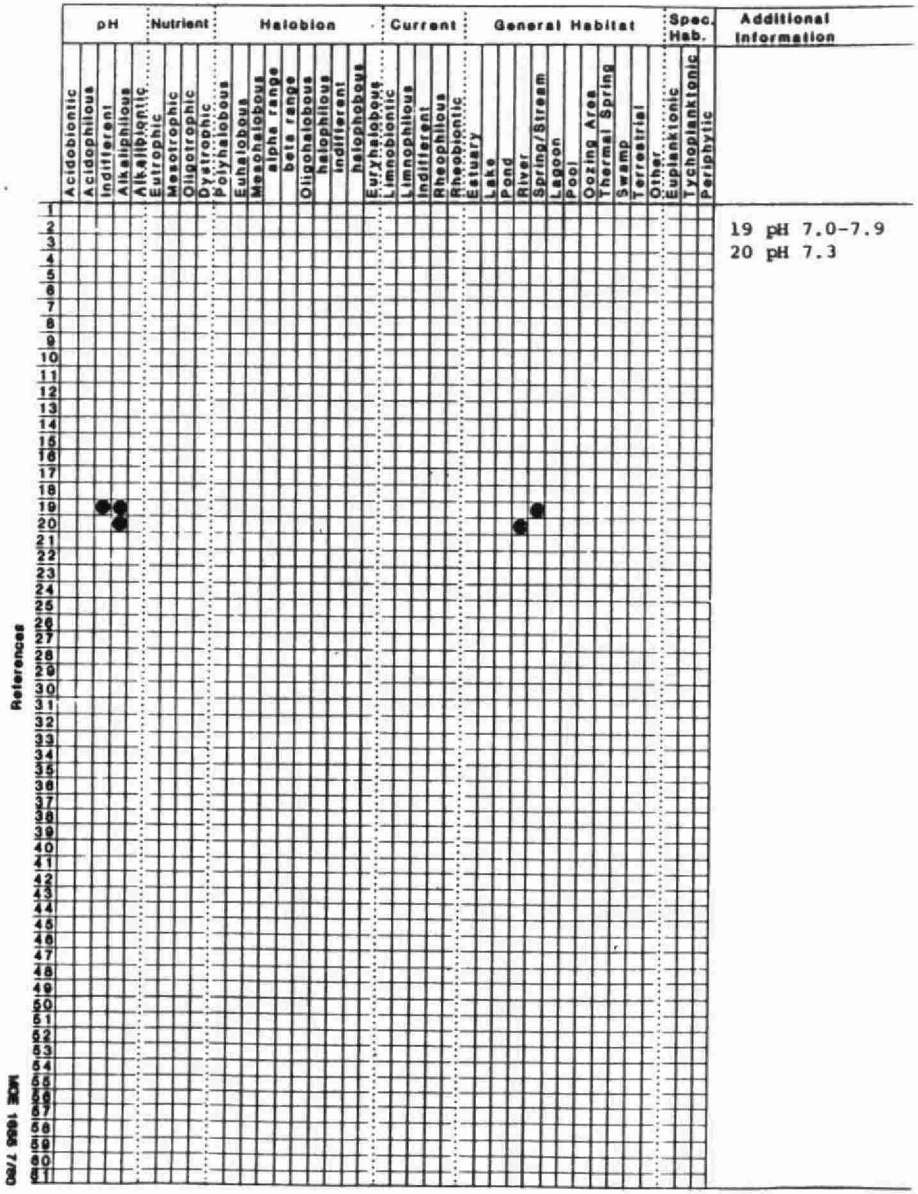
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes rupestris Krasske

Synonym



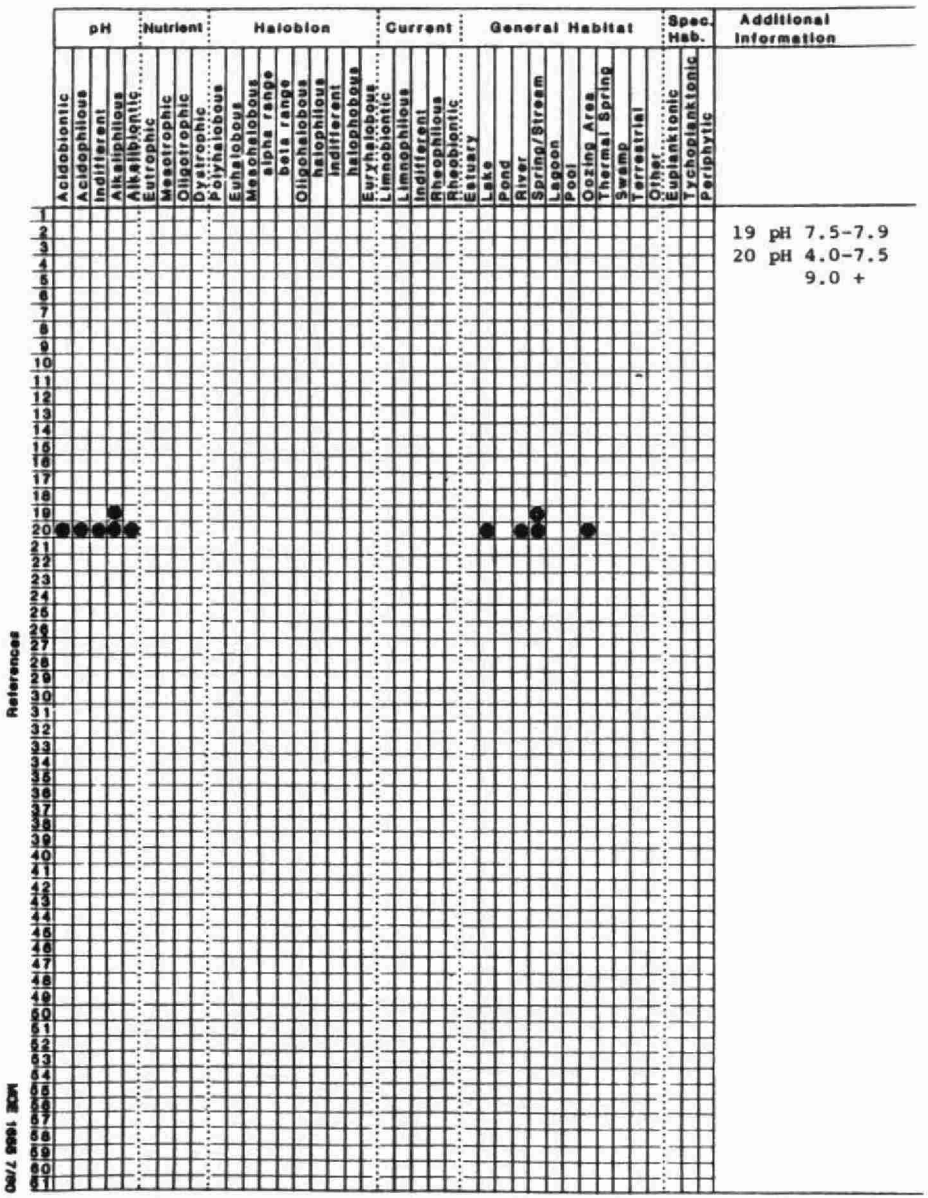
Additional Information

19 pH 7.0-7.9
20 pH 7.3

Ministry of the Environment
Ontario

Taxon Achnanthes saxonica Krasske

Synonym



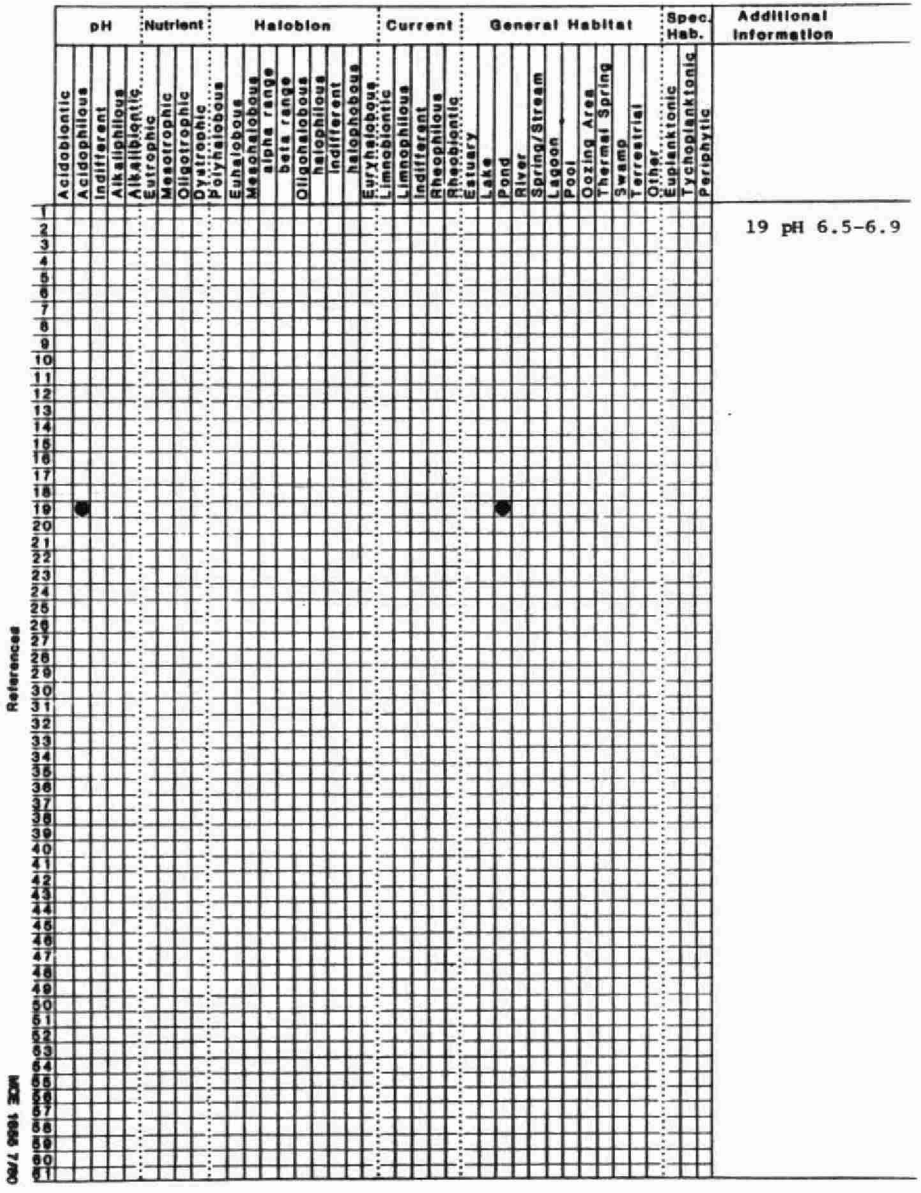
Additional Information

19 pH 7.5-7.9
20 pH 4.0-7.5
9.0 +

Ministry of the Environment
Ontario

Taxon Achnanthes semifasciata (Østr.) Moll.

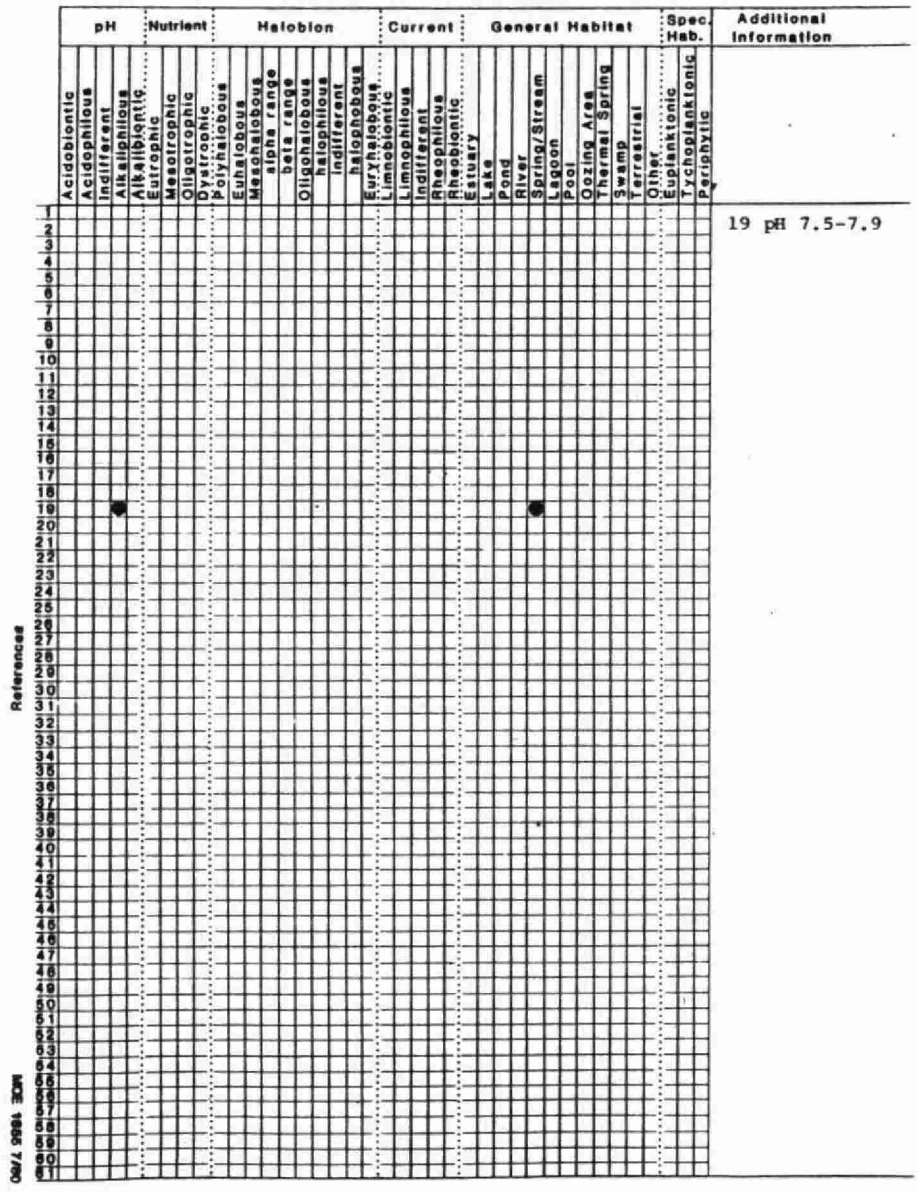
Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes suchlandti Hust.

Synonym



Ministry of the Environment
Ontario

Taxon Achnanthes trinodis (W. Sm.) Grun.

Synonym

References	pH					Nutrient					Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Achromatium sp.

Synonym

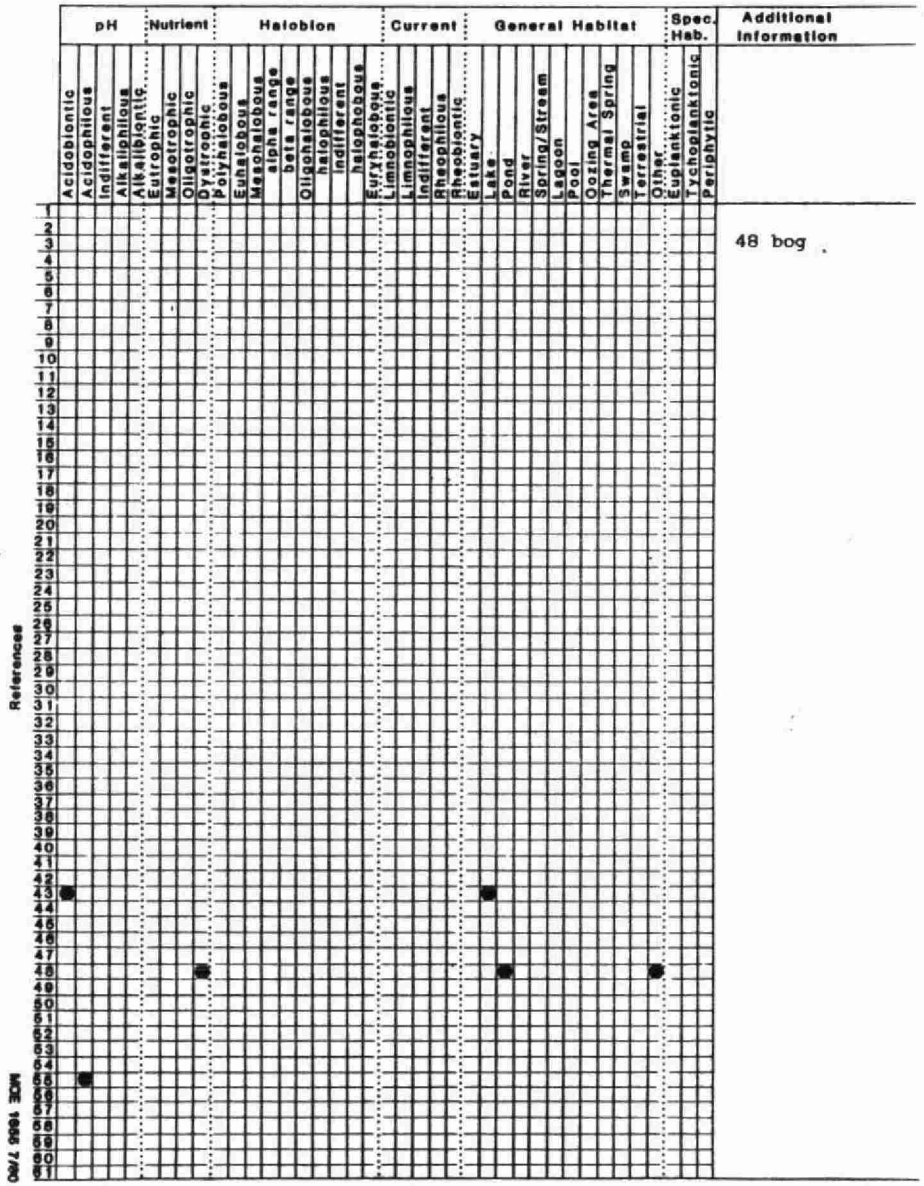
References	pH					Nutrient					Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Actinella punctata Lewis

Synonym

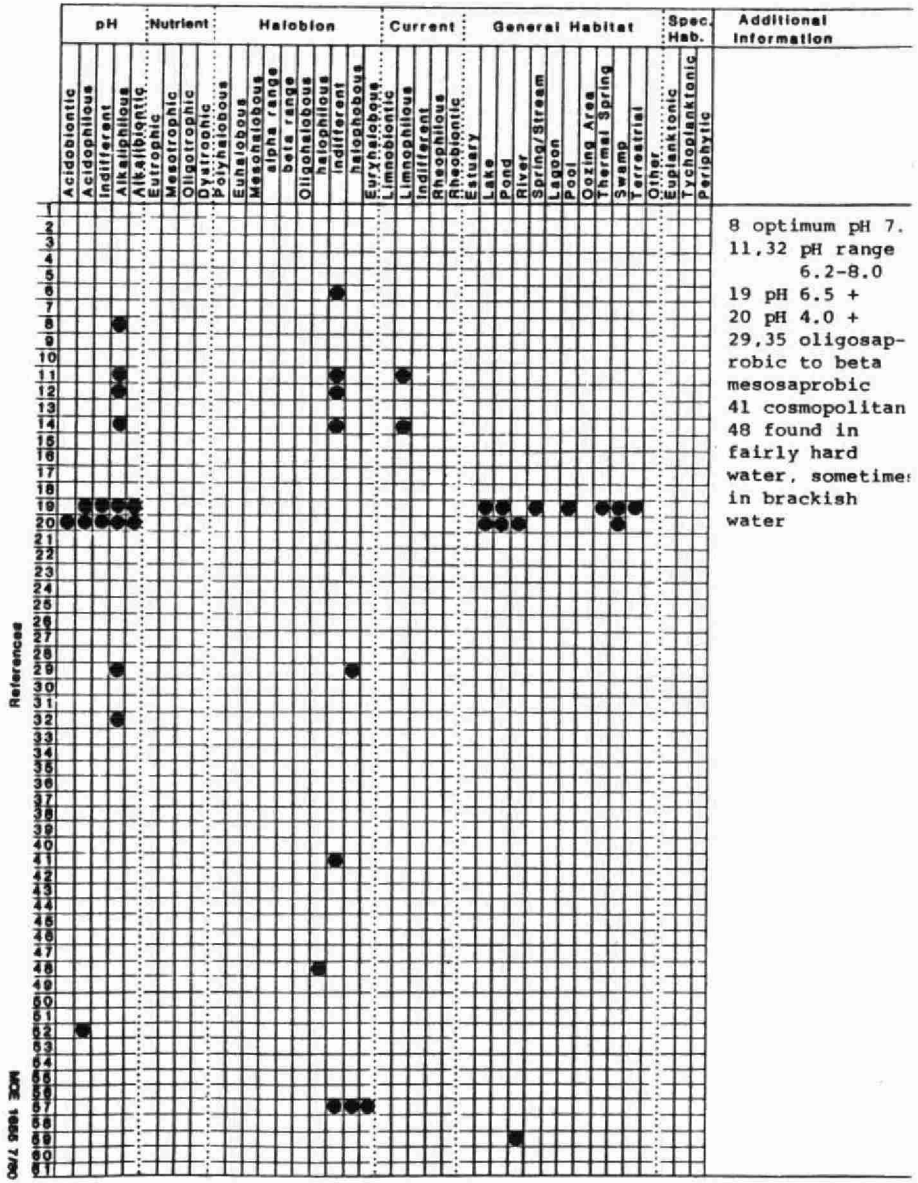


48 bog .

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Taxon Amphipleura pellucida Kutz.

Synonym Frustulia pellucida Kutz.

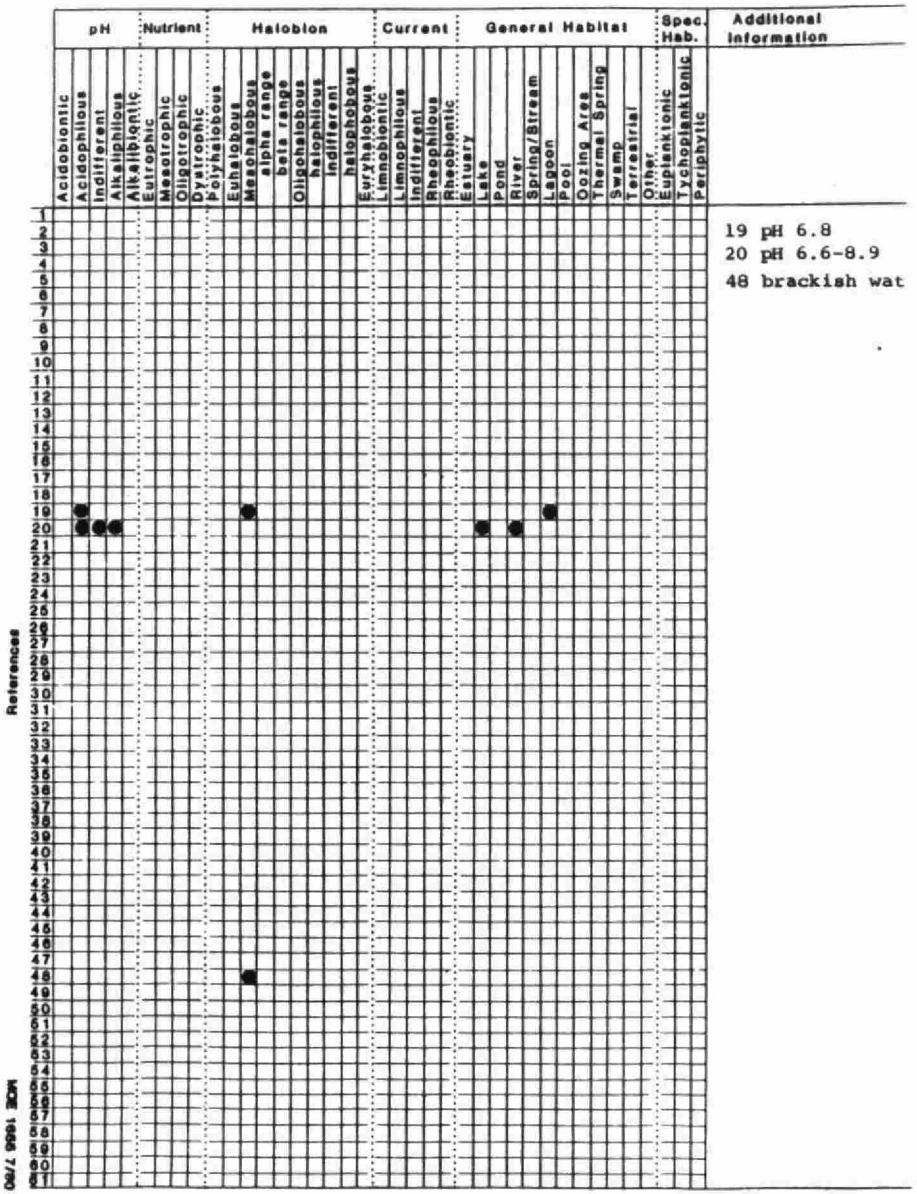


8 optimum pH 7.
11,32 pH range 6.2-8.0
19 pH 6.5 +
20 pH 4.0 +
29,35 oligosaprobic to beta mesosaprobic
41 cosmopolitan
48 found in fairly hard water, sometimes in brackish water

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Taxon Amphipleura rutilans (Trent.) Cl.

Synonym

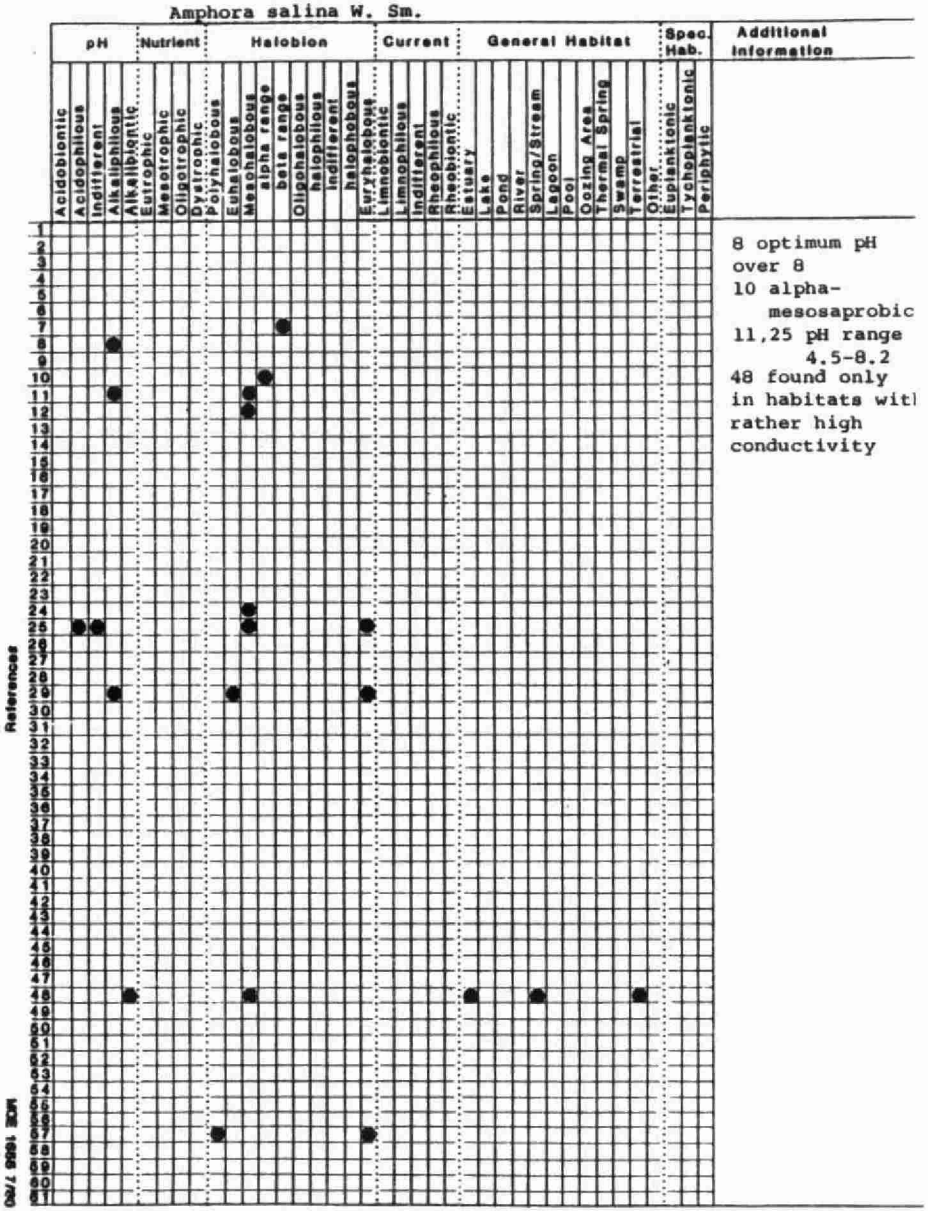


Ministry of the Environment
Ontario

Taxon Amphora coffeiformis (Ag.) Kutz.

Synonym Amphora coffeaeformis (Ag.) Kutz.

Amphora salina W. Sm.



Ministry of the Environment
Ontario

Taxon Amphora dusenii Brun.

Synonym

References	pH					Nutrient				Halobion									Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Amphora inflata Kutz.

Synonym

References	pH					Nutrient				Halobion									Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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8 pH optimum
7.5-8.5
8 thrives at hi
oxygen concent-
ration
29 saproxenous
29 aerophilous
27 cosmopolitan

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Ministry of the Environment
Ontario

Taxon Amphora montana Krasske

Synonym

	pH					Nutrient					Halobion										Current					General Habitat											Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

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Ministry of the Environment
Ontario

Taxon Amphora obscura Krasske

Synonym

	pH					Nutrient					Halobion										Current					General Habitat											Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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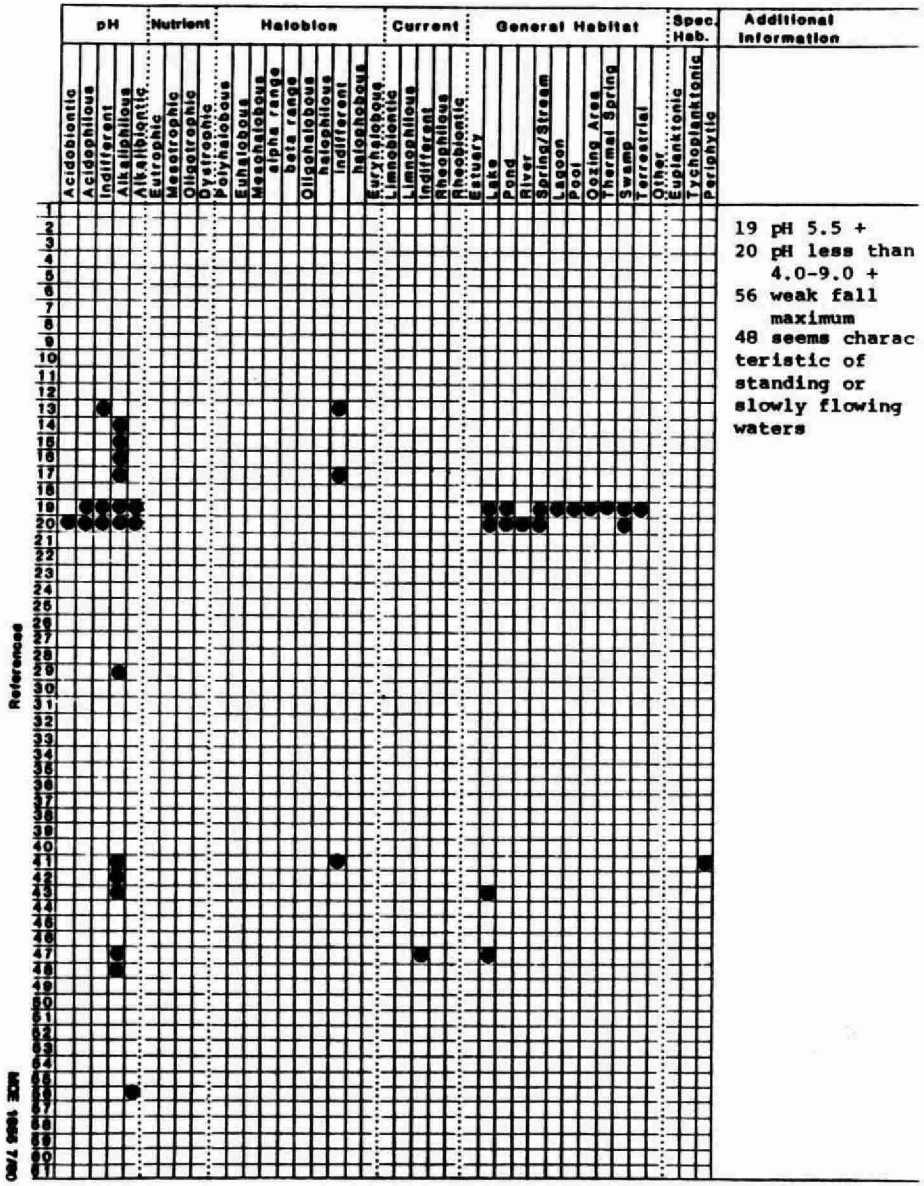
References

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Ministry of the Environment
Ontario

Taxon Amphora ovalis var. affinis (Kutz.) V. H. ex DeT.

Synonym Amphora ovalis var. libyca (Ehr.) Cl.

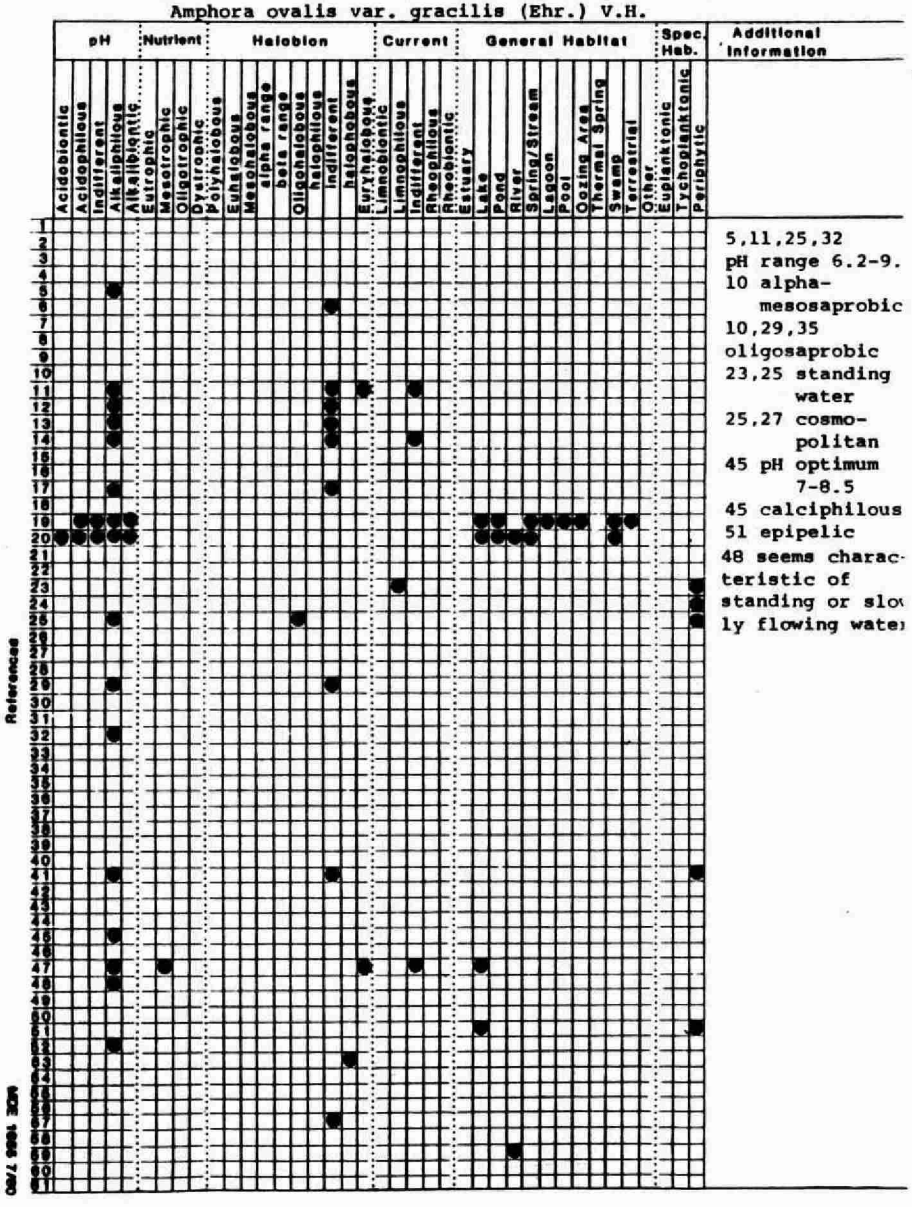


19 pH 5.5 +
20 pH less than 4.0-9.0 +
56 weak fall maximum
48 seems charac teristic of standing or slowly flowing waters

Ministry of the Environment
Ontario

Taxon Amphora ovalis(Kutz.) Kutz. var. ovalis

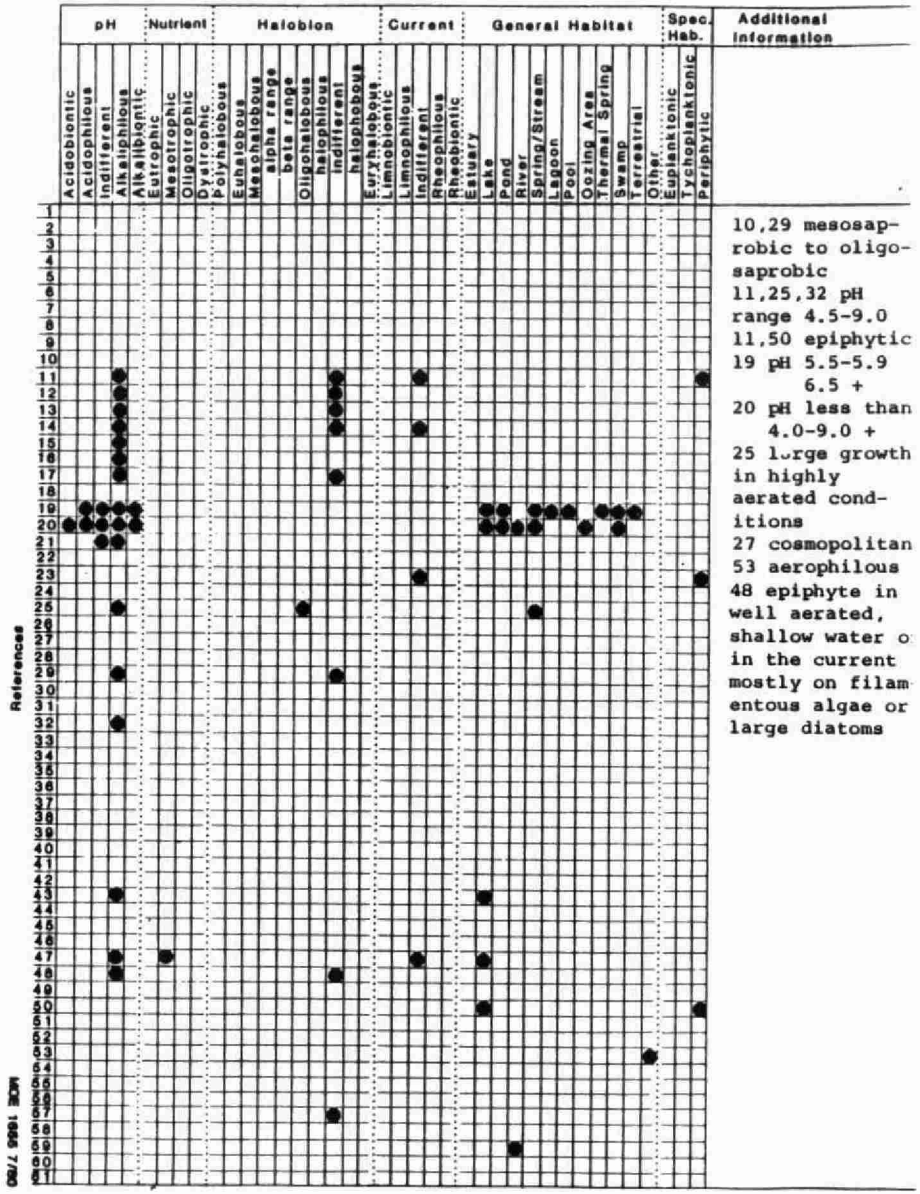
Synonym Amphora ovalis f. gracilis (Ehr.) Hust.
Amphora ovalis var. gracilis (Ehr.) V.H.



5,11,25,32
pH range 6.2-9.
10 alpha-mesosaprobic
10,29,35 oligosaprobic
23,25 standing water
25,27 cosmo-politan
45 pH optimum 7-8.5
45 calciphilous
51 epipelic
48 seems charac-teristic of standing or slo ly flowing wate

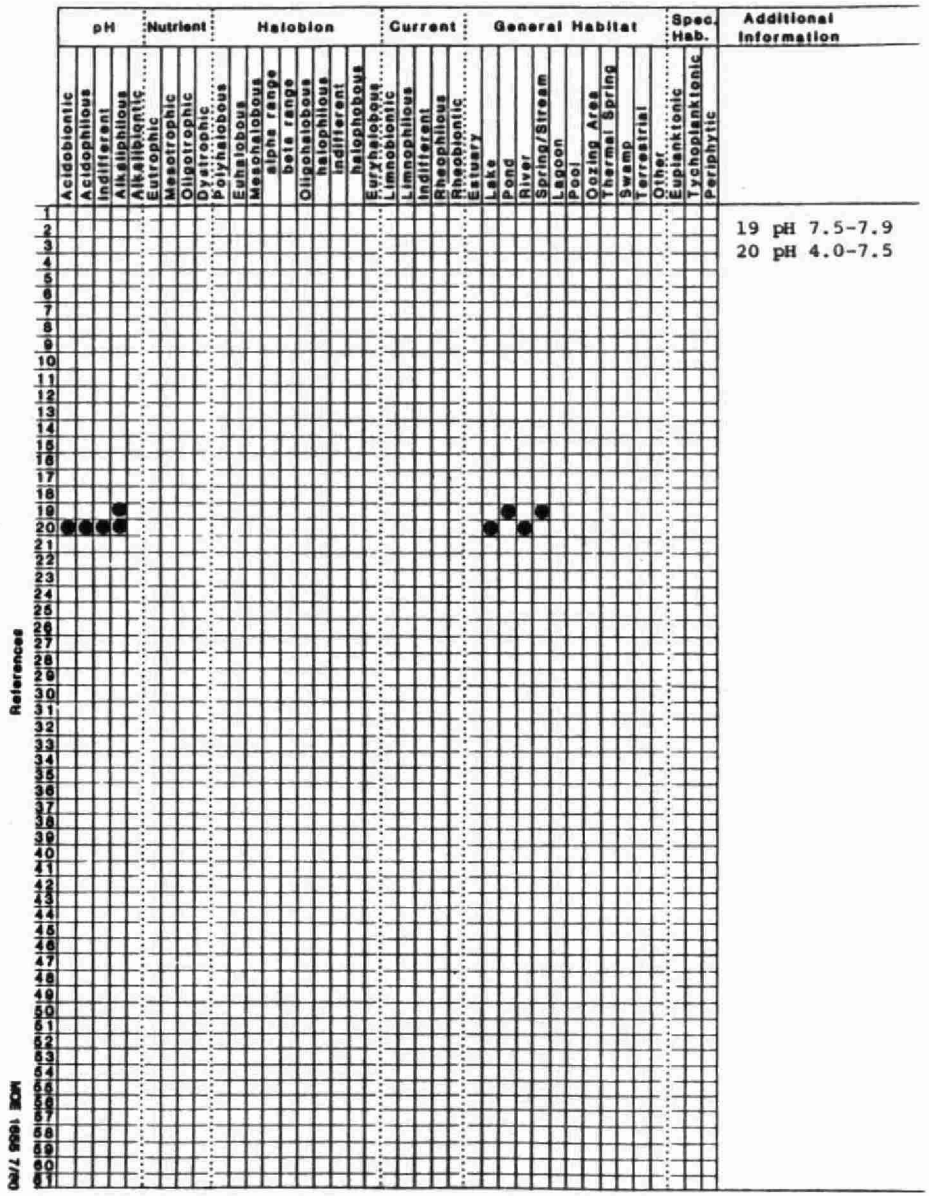
Taxon Amphora ovalis var. pediculus(Kutz.) V.H. ex DeT.

Synonym



Taxon Amphora parallelistriata Mang.

Synonym



Ministry of the Environment
Ontario

Taxon Amphora perpusilla (Grun.) Grun.

Synonym Amphora globulosa var. perpusilla Grun.

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
20				●	●																				●		●													20 pH 7.6 +
47				●			●																																	
48				●																																			48 ?epilithic

Ministry of the Environment
Ontario

Taxon Amphora submontana Hust.

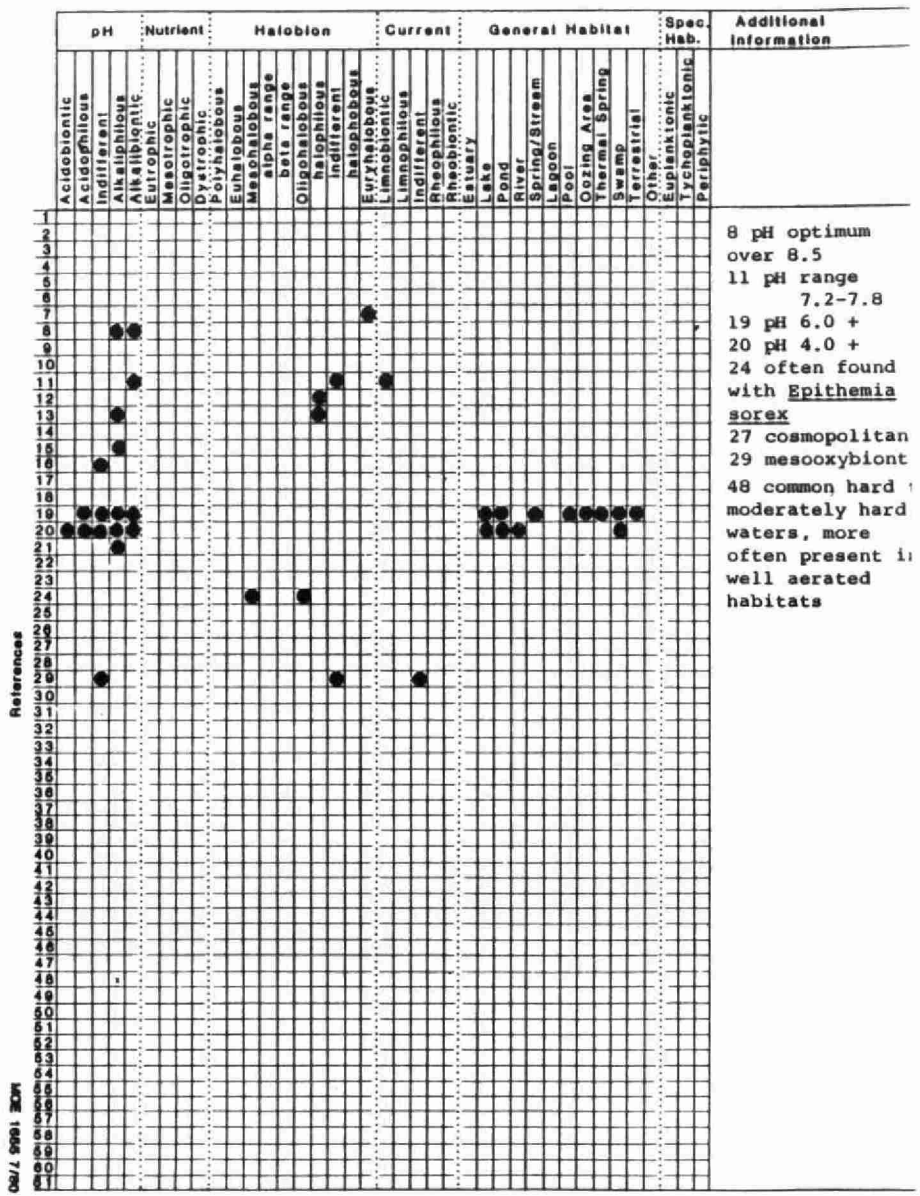
Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
8				●																																				8 pH optimum around 7.5
48				●																									●	●										48 hard water taxon

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Ontario

Taxon Amphora veneta Kutz.

Synonym

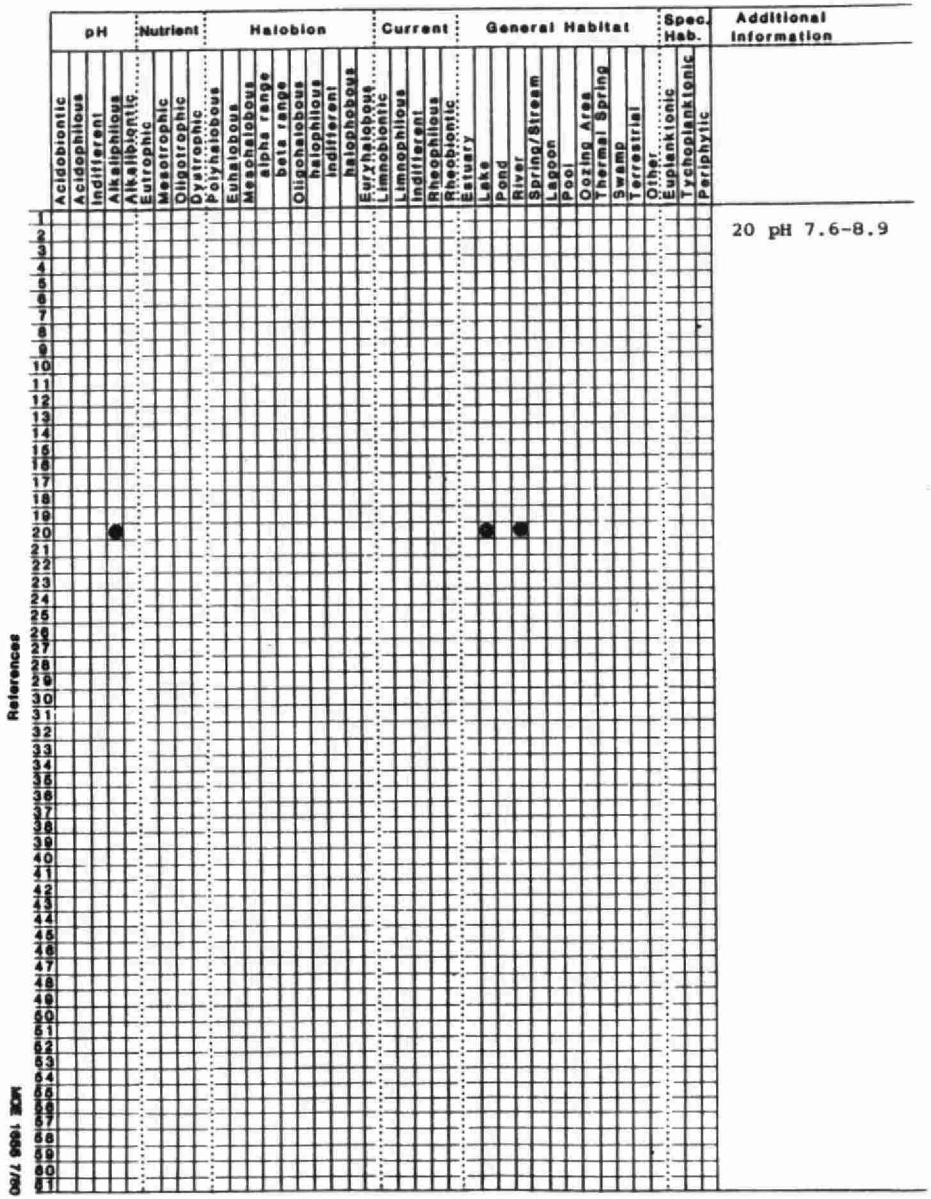


8 pH optimum over 8.5
11 pH range 7.2-7.8
19 pH 6.0 +
20 pH 4.0 +
24 often found with Epithemia sorex
27 cosmopolitan
29 mesooxybiont
48 common hard moderately hard waters, more often present i well aerated habitats

Ministry of the Environment
Ontario

Taxon Amphora veneta f. capitata Haw.

Synonym

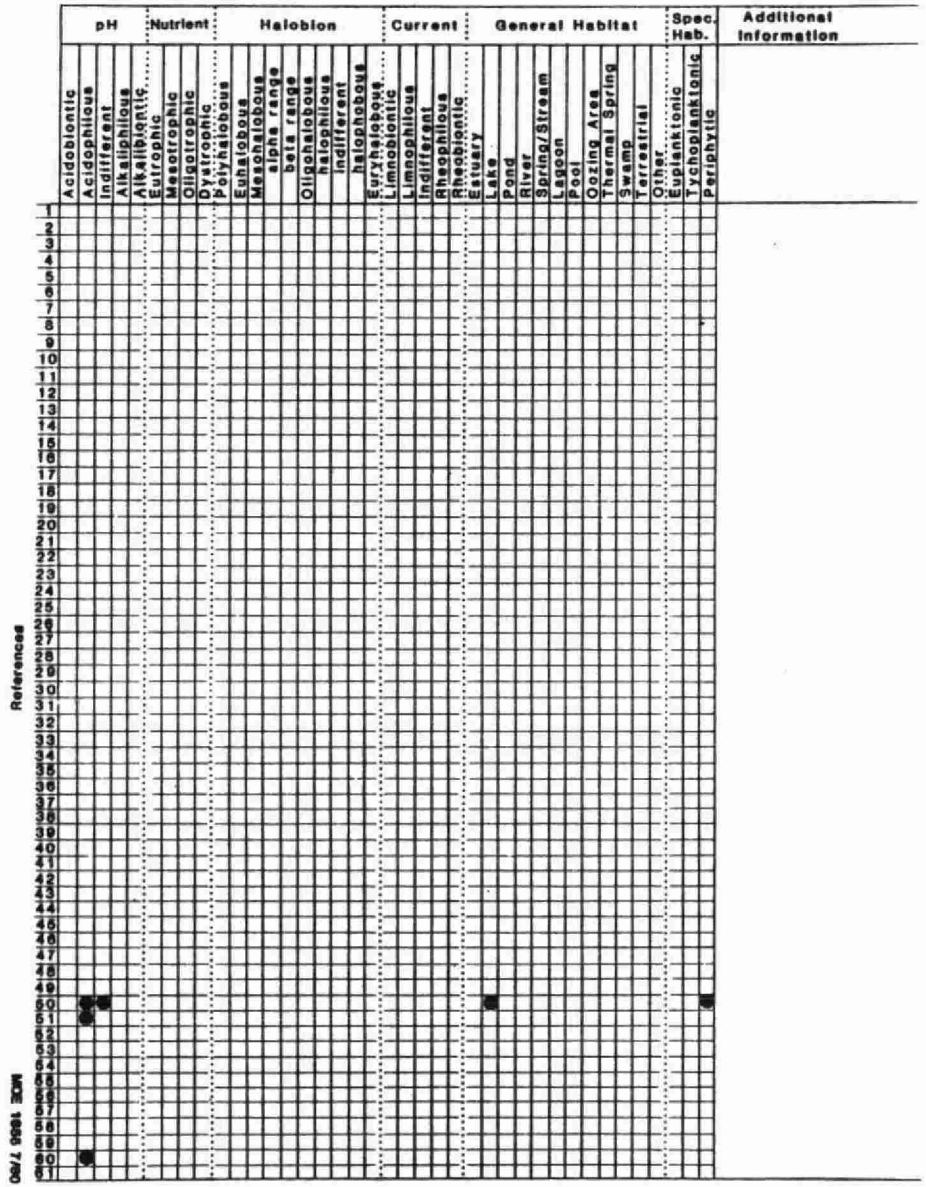


20 pH 7.6-8.9

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Ontario

Taxon Anomoeoneis sp.

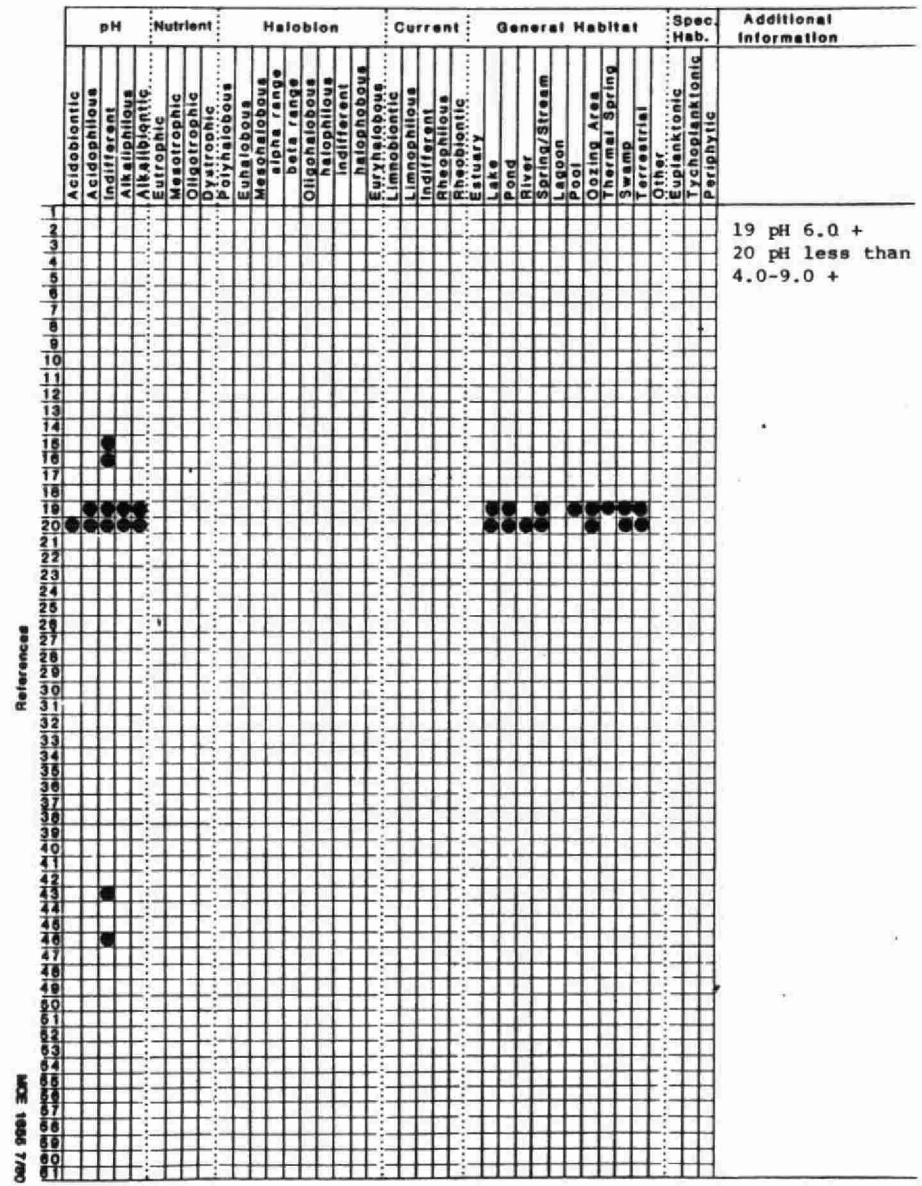
Synonym



Ministry of the Environment
Ontario

Taxon Anomoeoneis exilis f. lanceolata A. Mayer

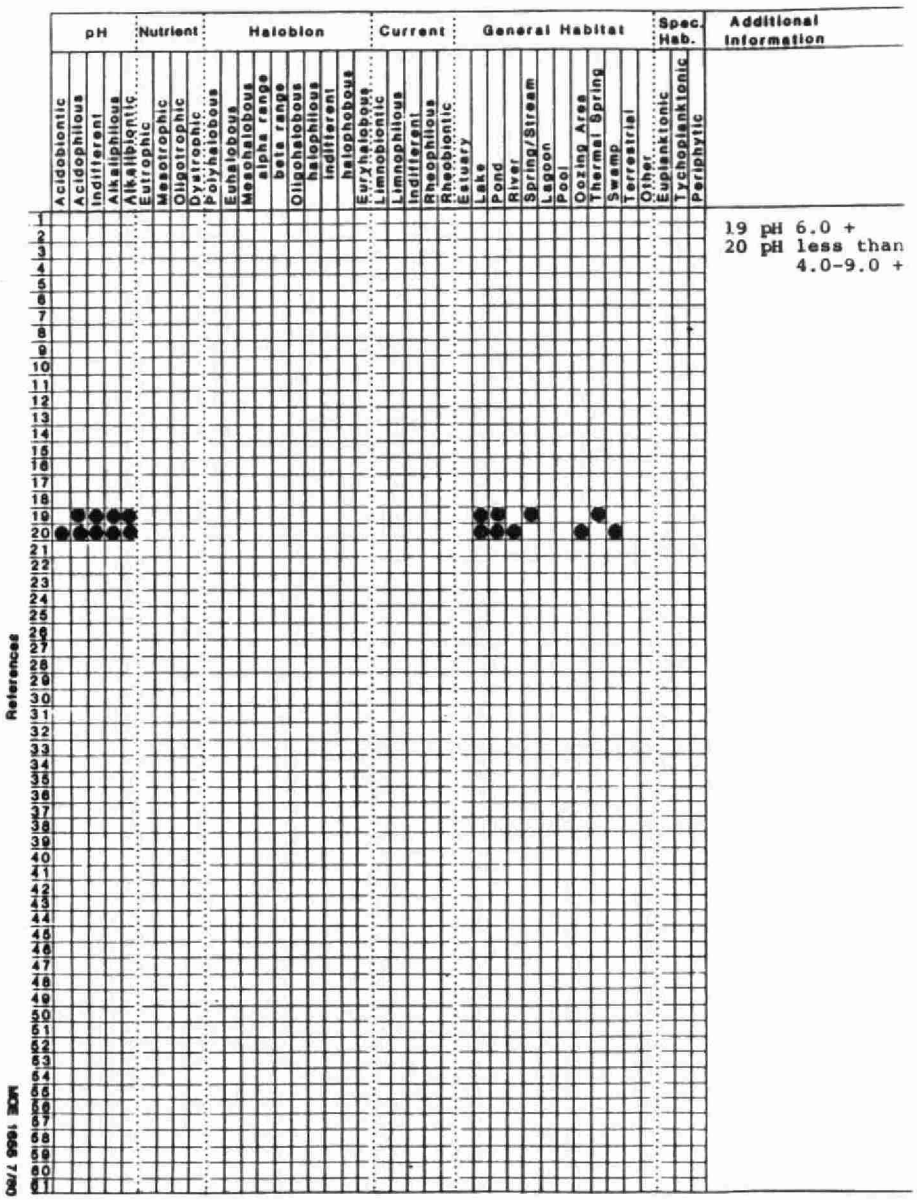
Synonym



19 pH 6.0 +
20 pH less than 4.0-9.0 +

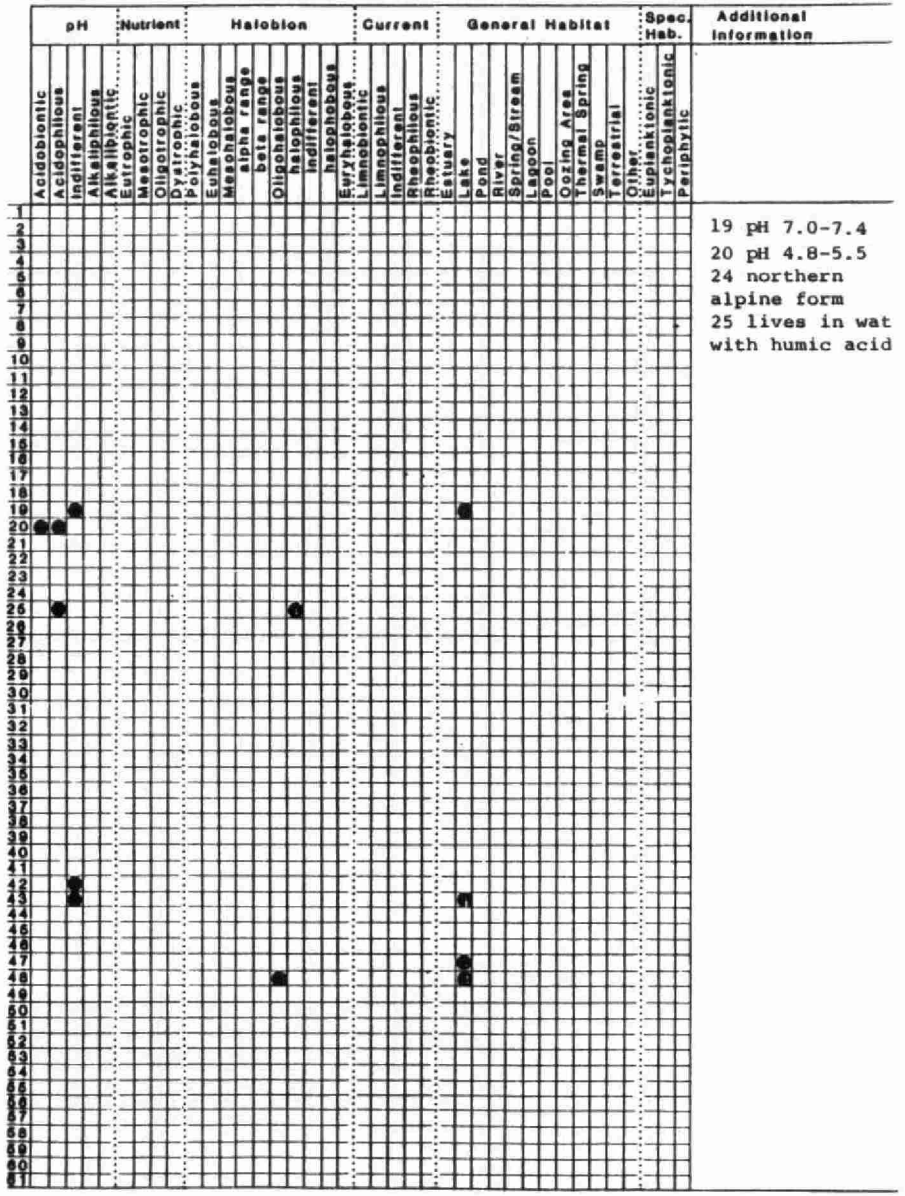
Taxon Anomoeoneis exilis var. thermalis (Grun.) Cl.

Synonym Anomoeoneis serians var. brachysira f. thermalis (Grun.) Hust.



Taxon Anomoeoneis follis (Ehr.) Cl.

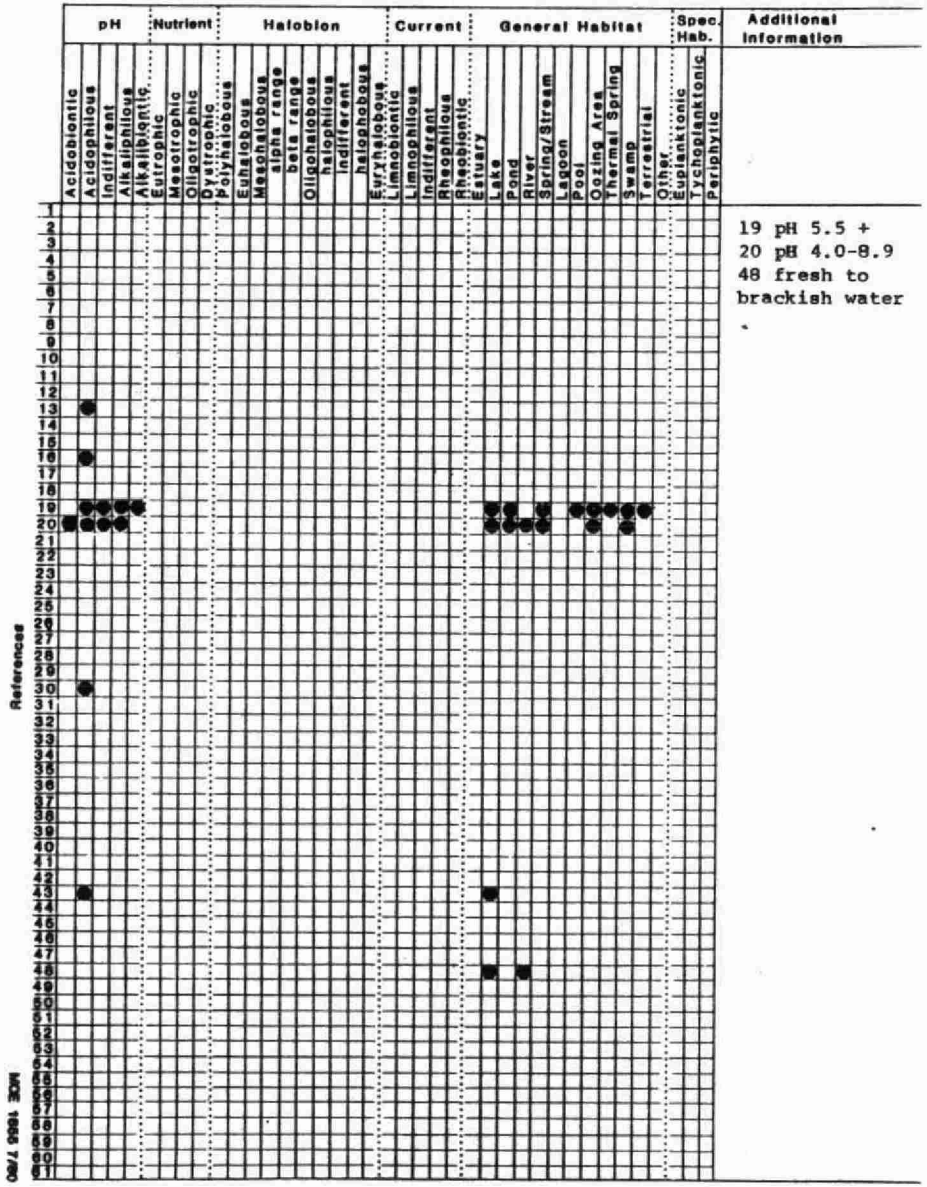
Synonym



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Taxon Anomoeoneis serians var. brachysira (Breb. ex Kutz.) Hust.

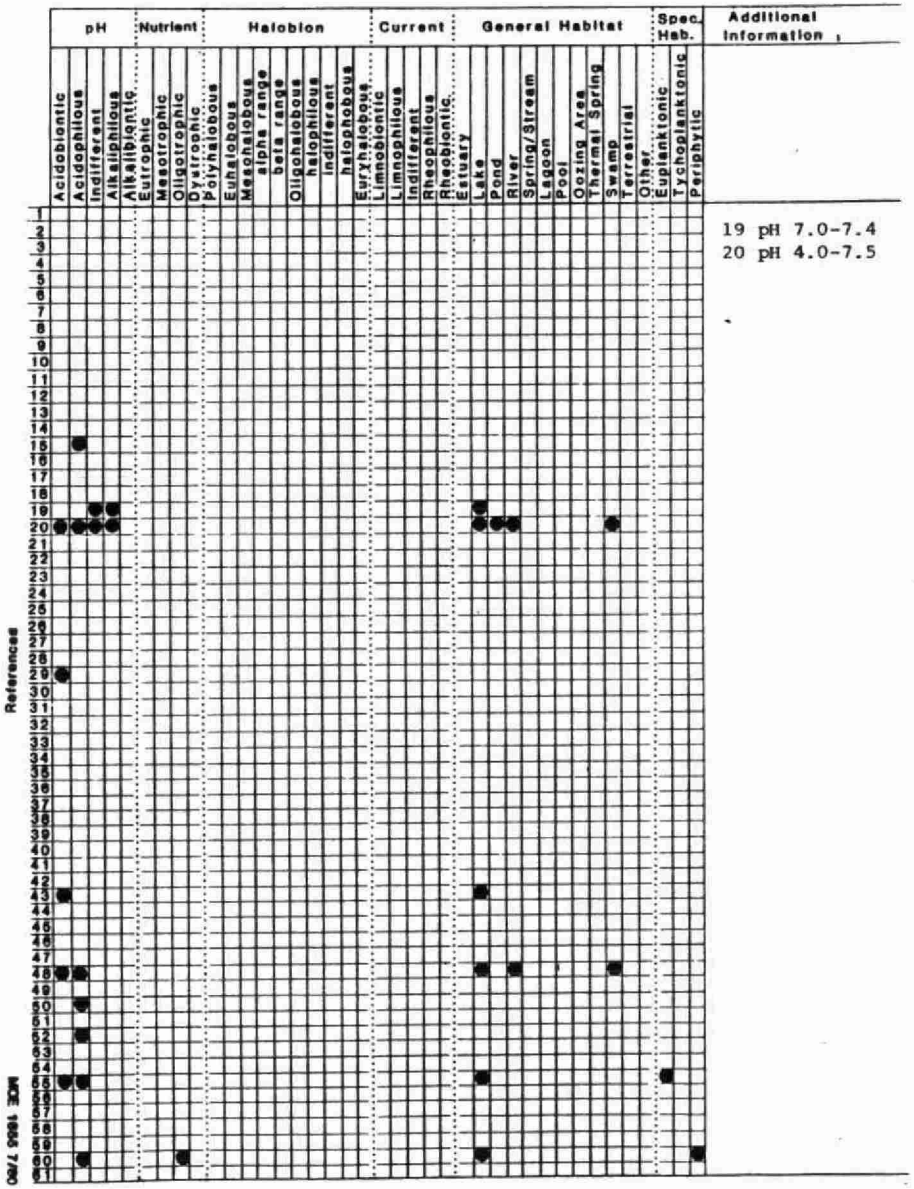
Synonym Anomoeoneis serians f. minor Boyer



Ministry of the Environment
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Taxon Anomoeoneis serians (Breb. ex Kutz.) Cl. var. serians

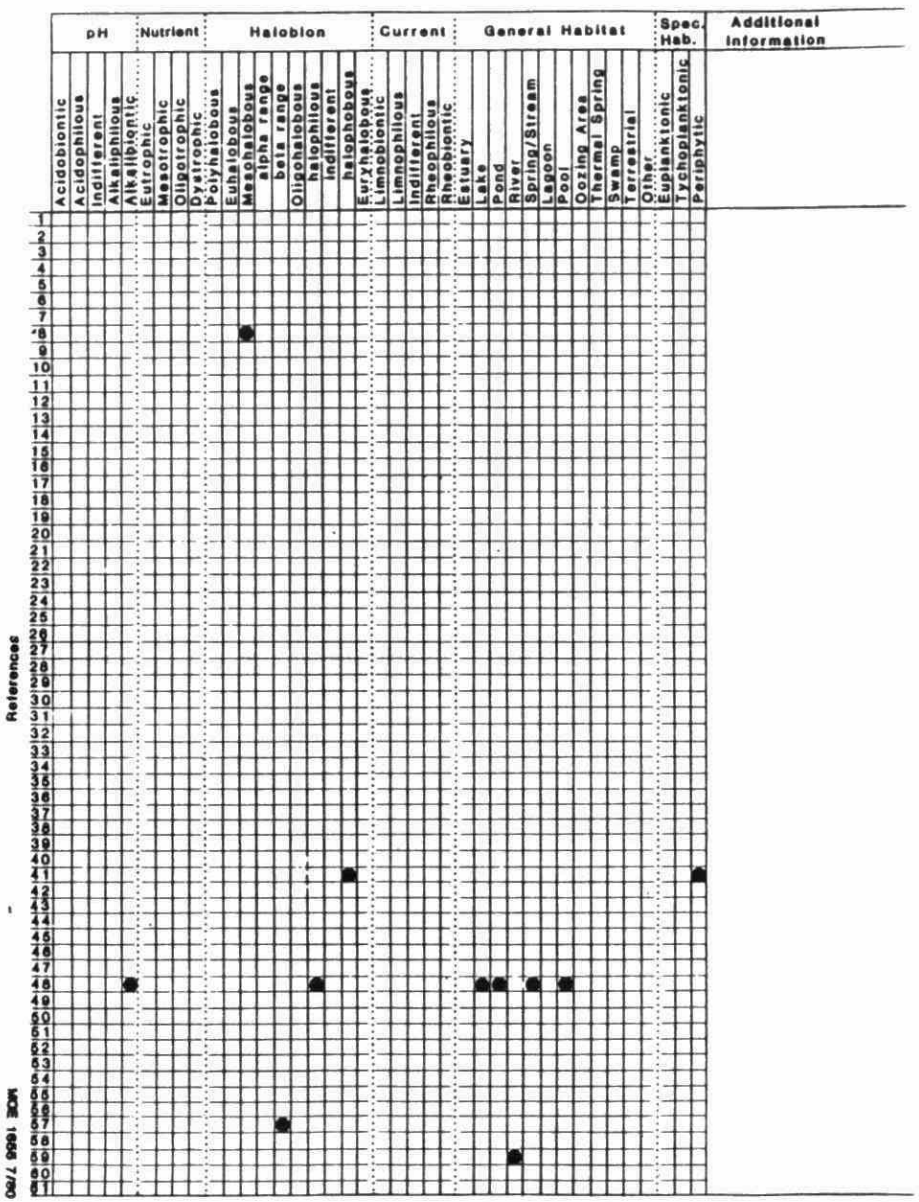
Synonym



Ministry of the Environment
Ontario

Taxon Anomoeoneis sphaerophora var. sculpta (Ehr.) O. Mull.

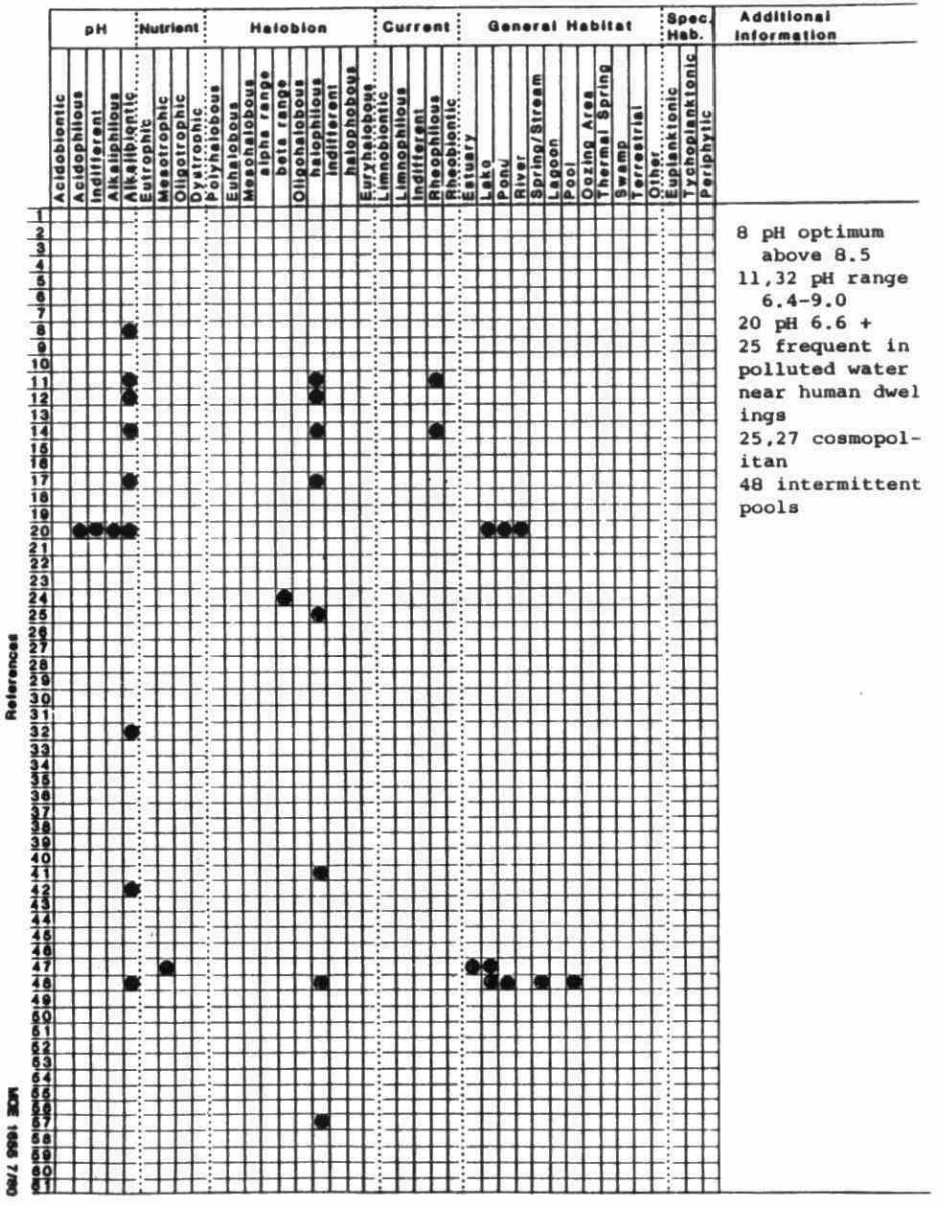
Synonym Anomoeoneis sculpta (Ehr.) Cl.



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Taxon Anomoeoneis sphaerophora (Ehr.) Pfitz. var. sphaerophora

Synonym

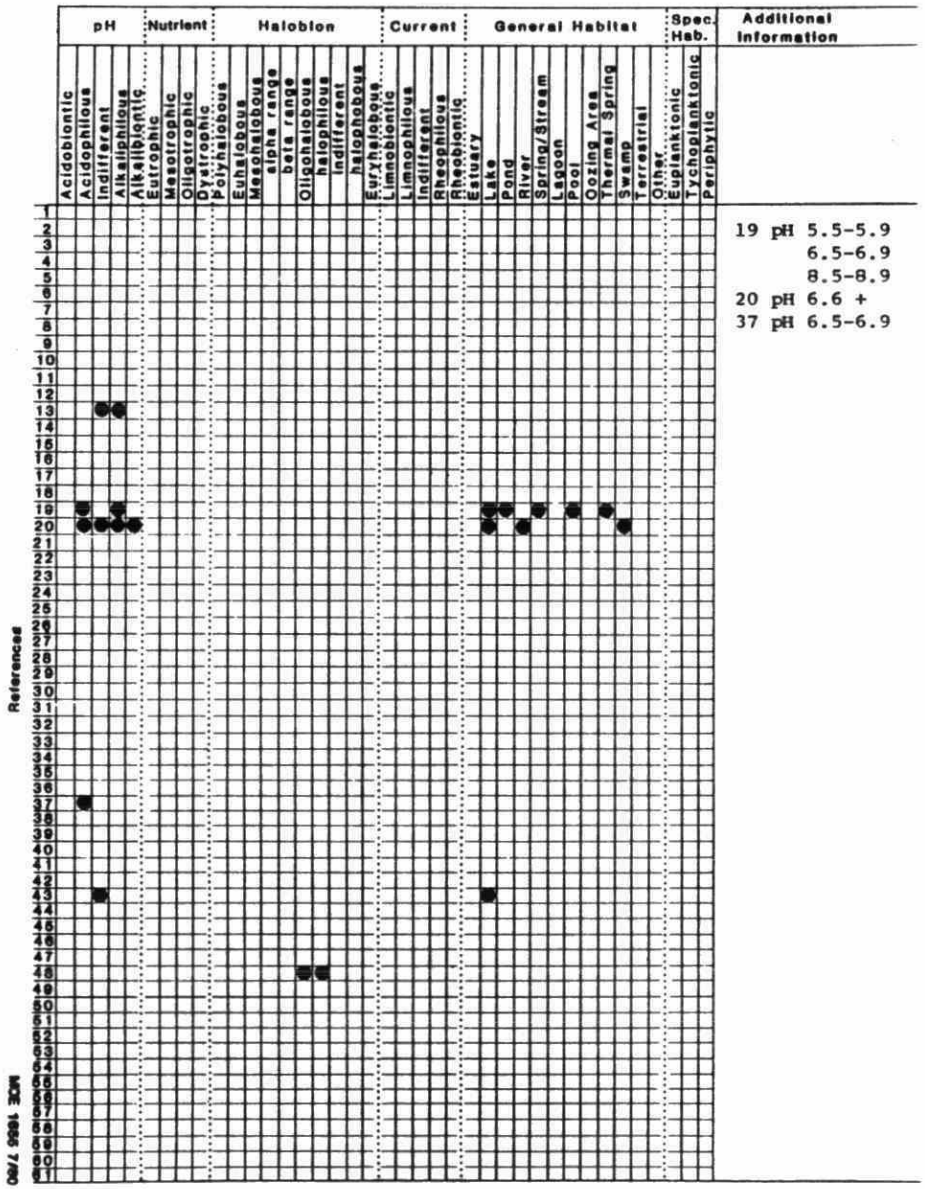


8 pH optimum above 8.5
11,32 pH range 6.4-9.0
20 pH 6.6 +
25 frequent in polluted water near human dwel ings
25,27 cosmopol-itan
48 intermittent pools

Ministry of the Environment
Ontario

Taxon Anomoeoneis styriaca (Grun.)Hust.

Synonym

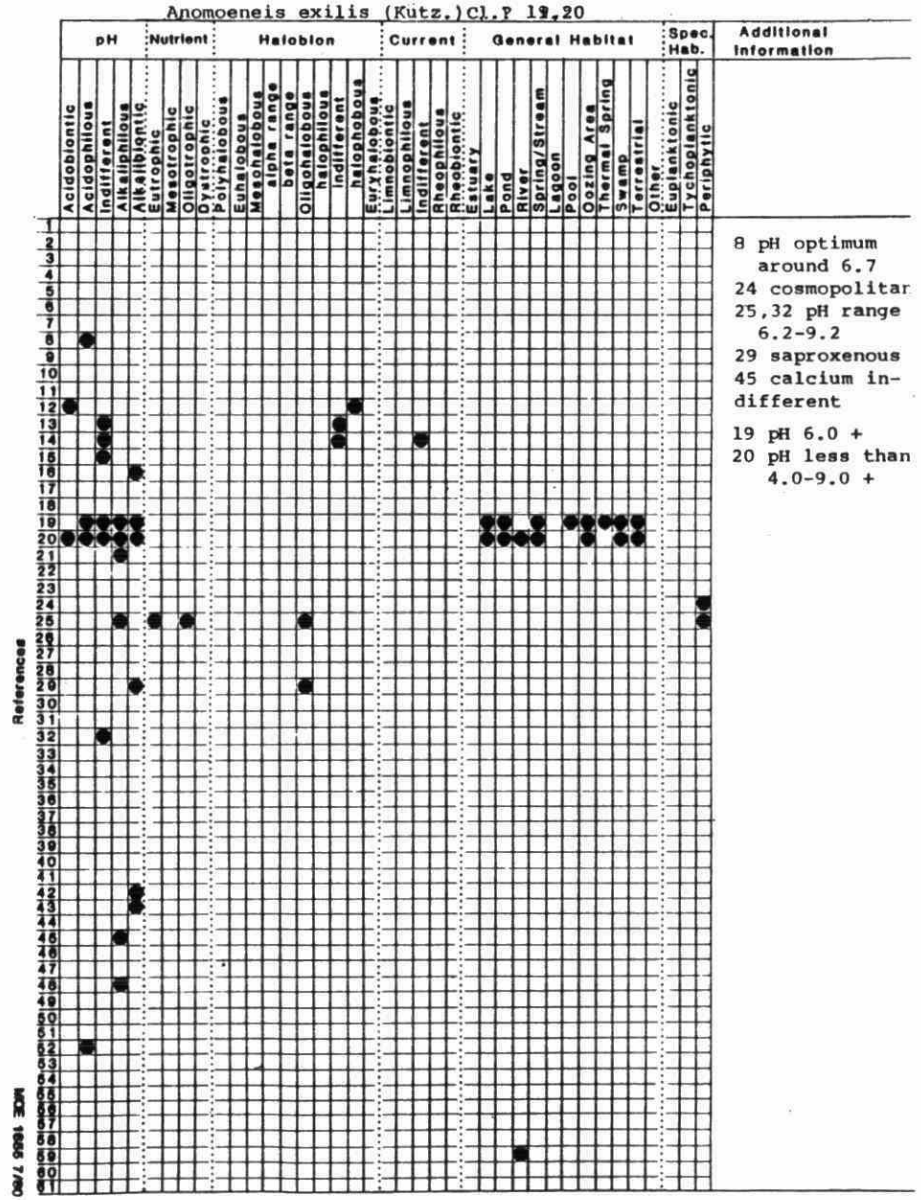


Ministry of the Environment
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Taxon Anomoeoneis vitrea (Grun.)Ross

Synonym Anomoeoneis variabilis (Ross) Reim.

Anomoeneis exilis (Kutz.)Cl.? 19,20



Ministry of the Environment
Ontario

Taxon Anomoeoneis zellensis f. difficilis (Grun.)Hust.

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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2																																							19 pH 6.5-6.9
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Ontario

Taxon Anomoeoneis zellensis (Grun.)Cl. var. zellensis

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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2																																							19 pH 6.5-6.9
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4																																							20 pH 7.6 +
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Ministry of the Environment
Ontario

Taxon Asterionella sp.

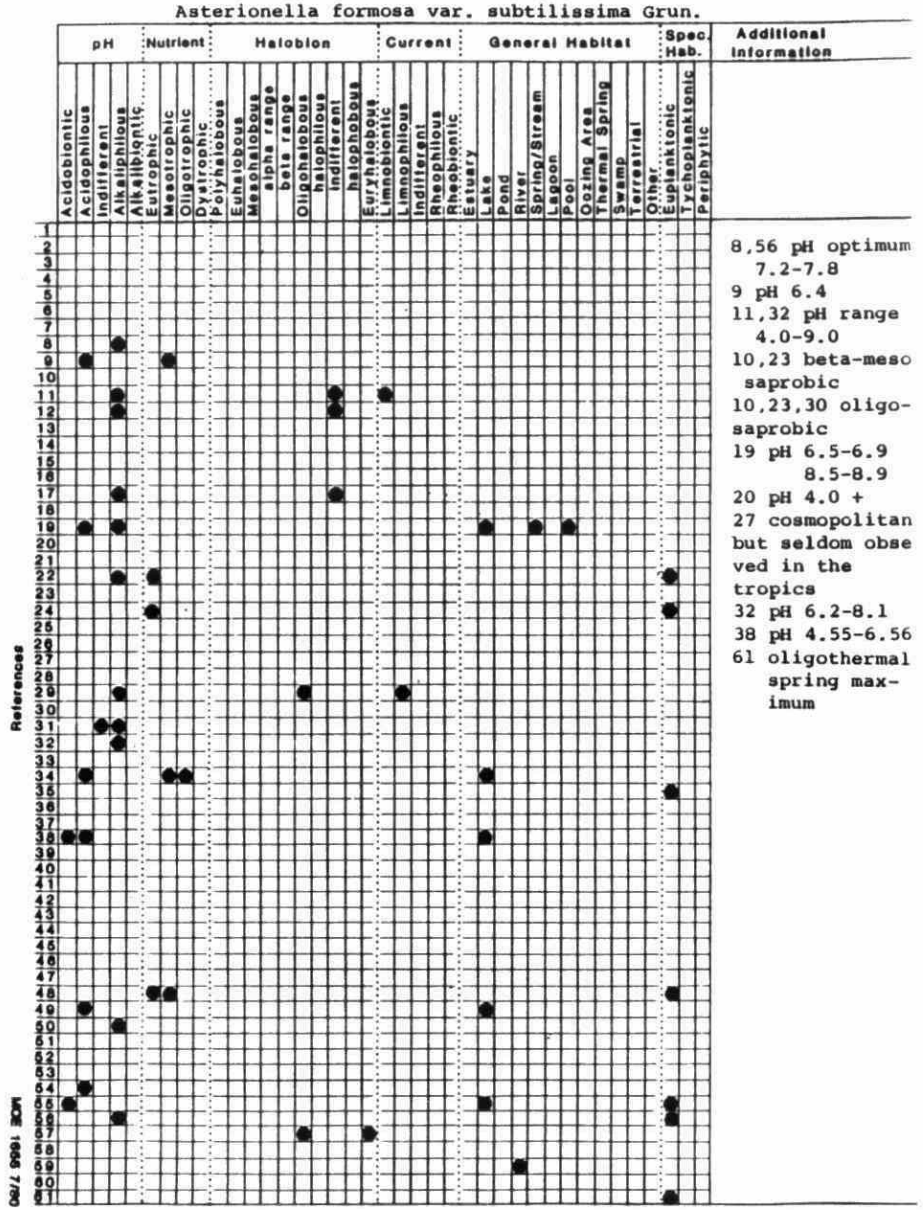
Synonym

pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						61 spring maximum

Taxon Asterionella formosa Hass. var. formosa

Synonym Asterionella formosa var. subtilis Grun.

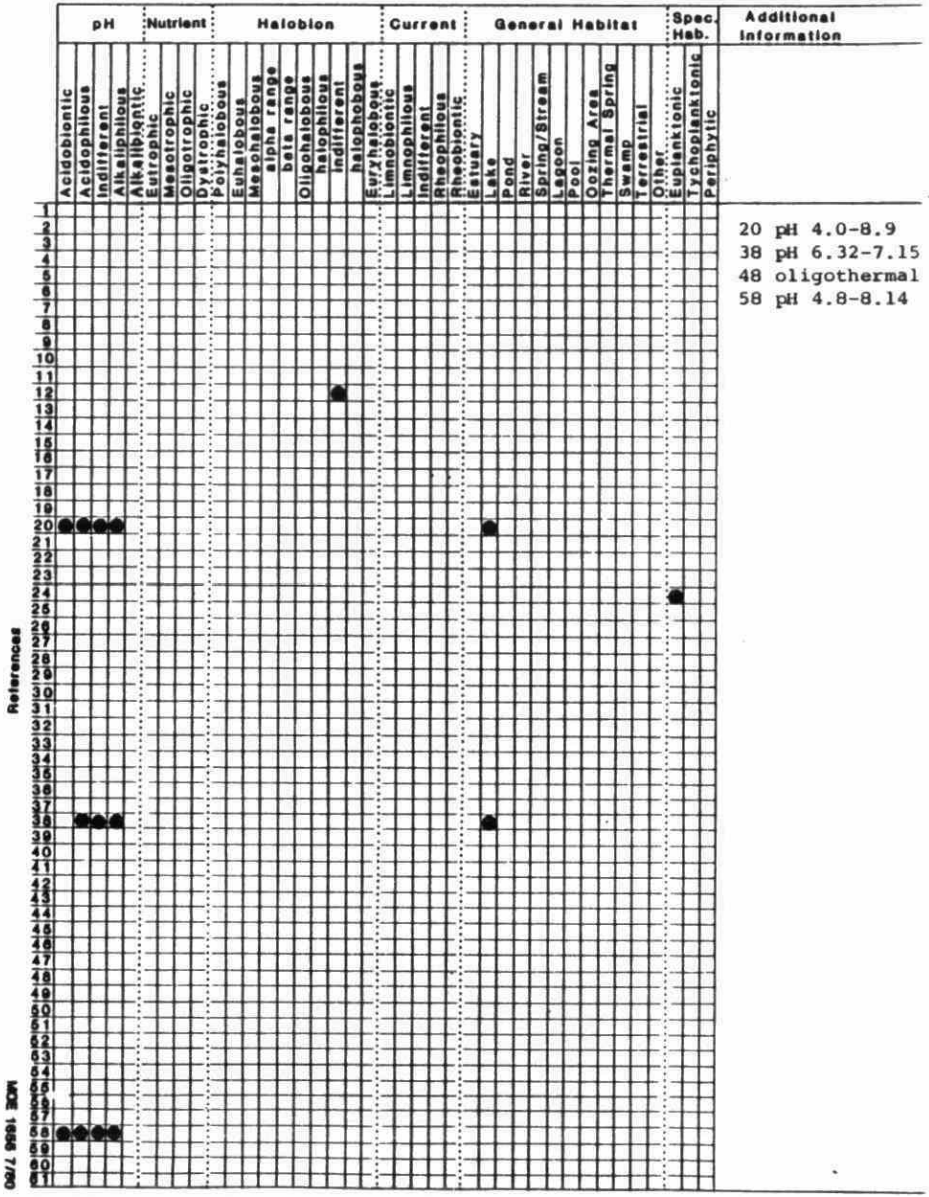
Asterionella formosa var. subtilissima Grun.



8,56 pH optimum 7.2-7.8
9 pH 6.4
11,32 pH range 4.0-9.0
10,23 beta-meso saprobic
10,23,30 oligo-saprobic
19 pH 6.5-6.9 8.5-8.9
20 pH 4.0 + 27 cosmopolitan but seldom obse ved in the tropics
32 pH 6.2-8.1
38 pH 4.55-6.56
61 oligothermal spring maximum

Taxon Asterionella formosa var. gracillima (Hantz.) Grun.

Synonym Diatoma gracillimum Hantz.



20 pH 4.0-8.9
38 pH 6.32-7.15
48 oligothermal
58 pH 4.8-8.14

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Taxon Asterionella ralfsii W. Sm.

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
20	●	●		●	●																				●		●												20 pH 4.0-6.5 7.6 +
48		●						●																															48 seems to pre fer shallow pon & water of low mineral content & low pH

MOE 1986 7/80

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Taxon Attheya zachariasi Brun.

Synonym

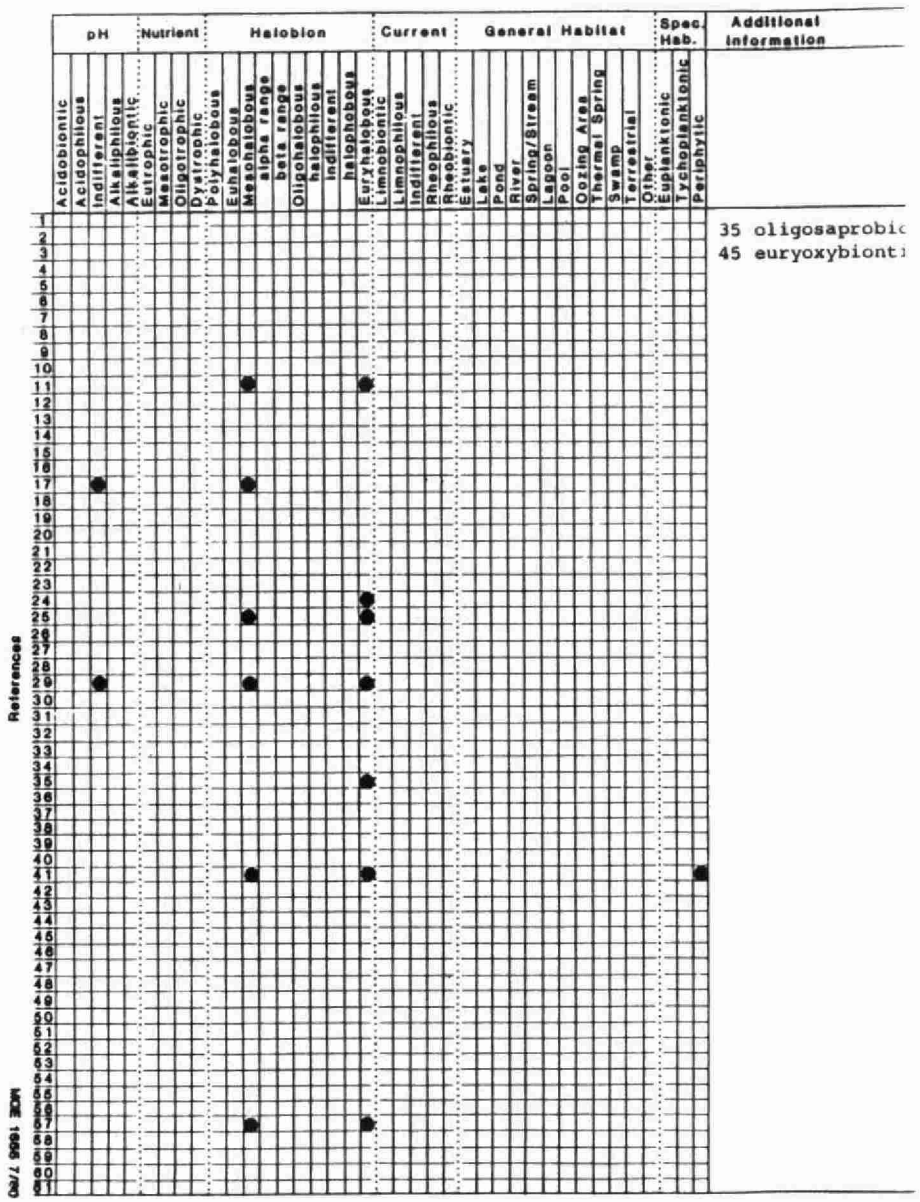
References	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
20			●																						●														20 pH 8.0
24		●																									●	●	●								●			24 fall max- imum
29			●												●																									29 oligosaprobi

MOE 1986 7/80

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Taxon Bacillaria paradoxa Gmelin

Synonym

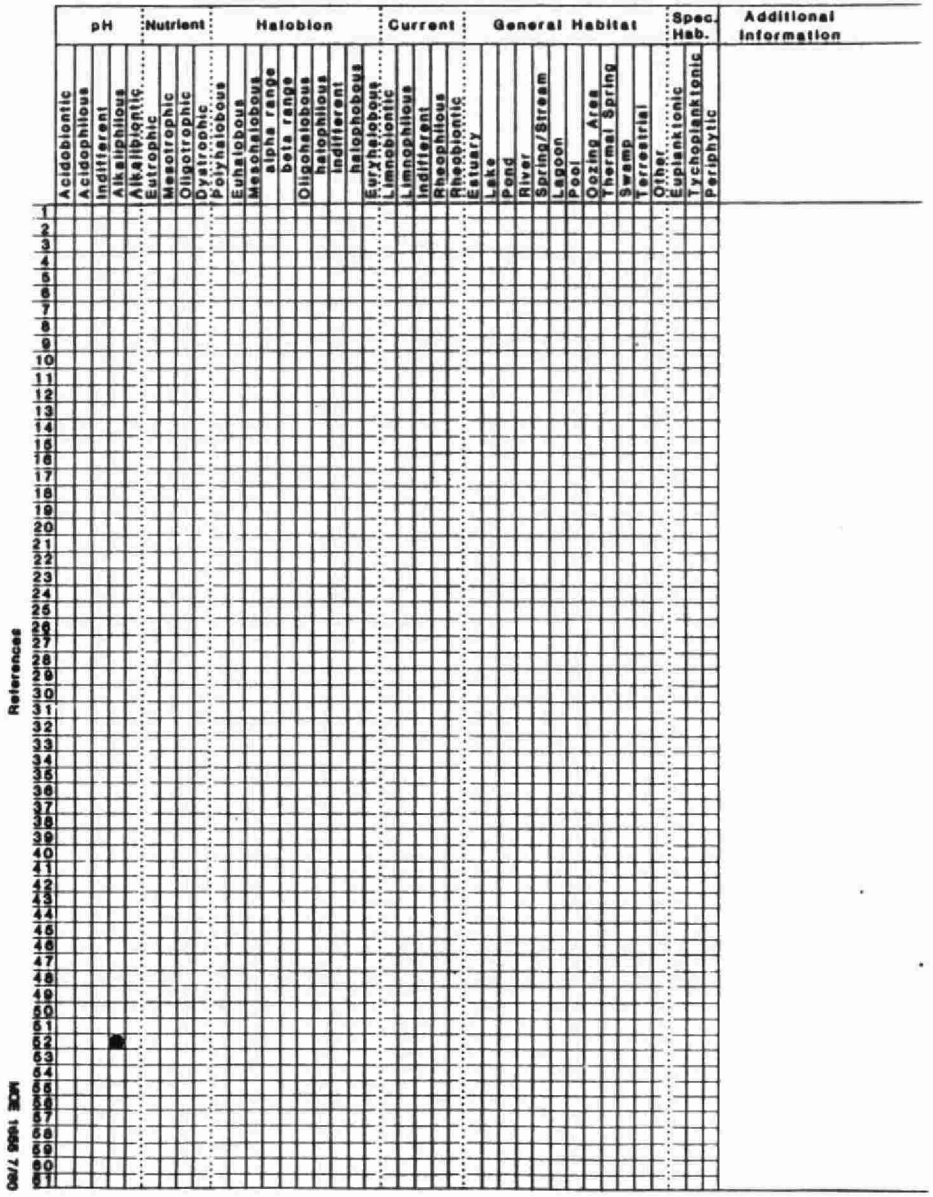


35 oligosaprobic
45 euryoxybiont

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Taxon Begiatoa sp.

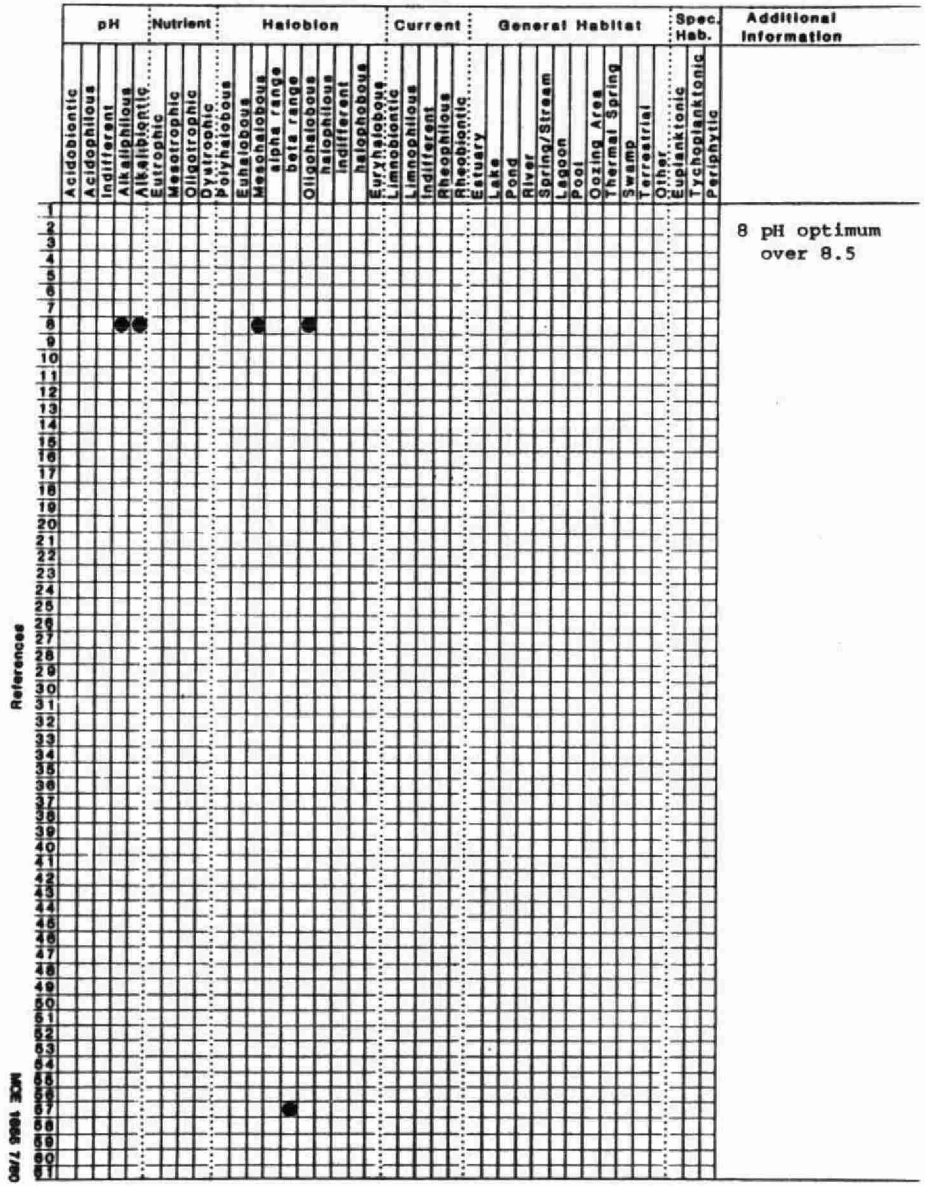
Synonym



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Taxon Biddulphia laevis Ehr.

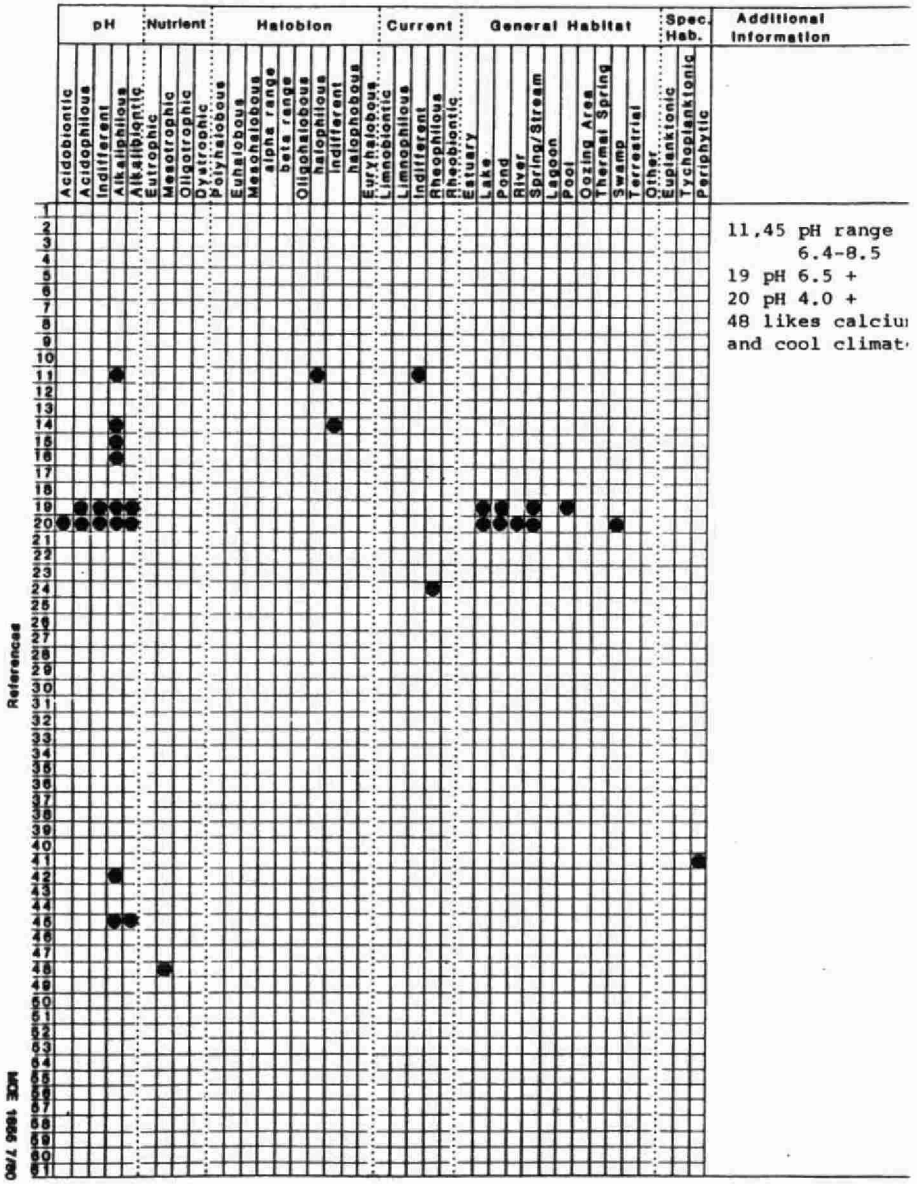
Synonym



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Taxon Caloneis alpestris (Grun.) Cl.

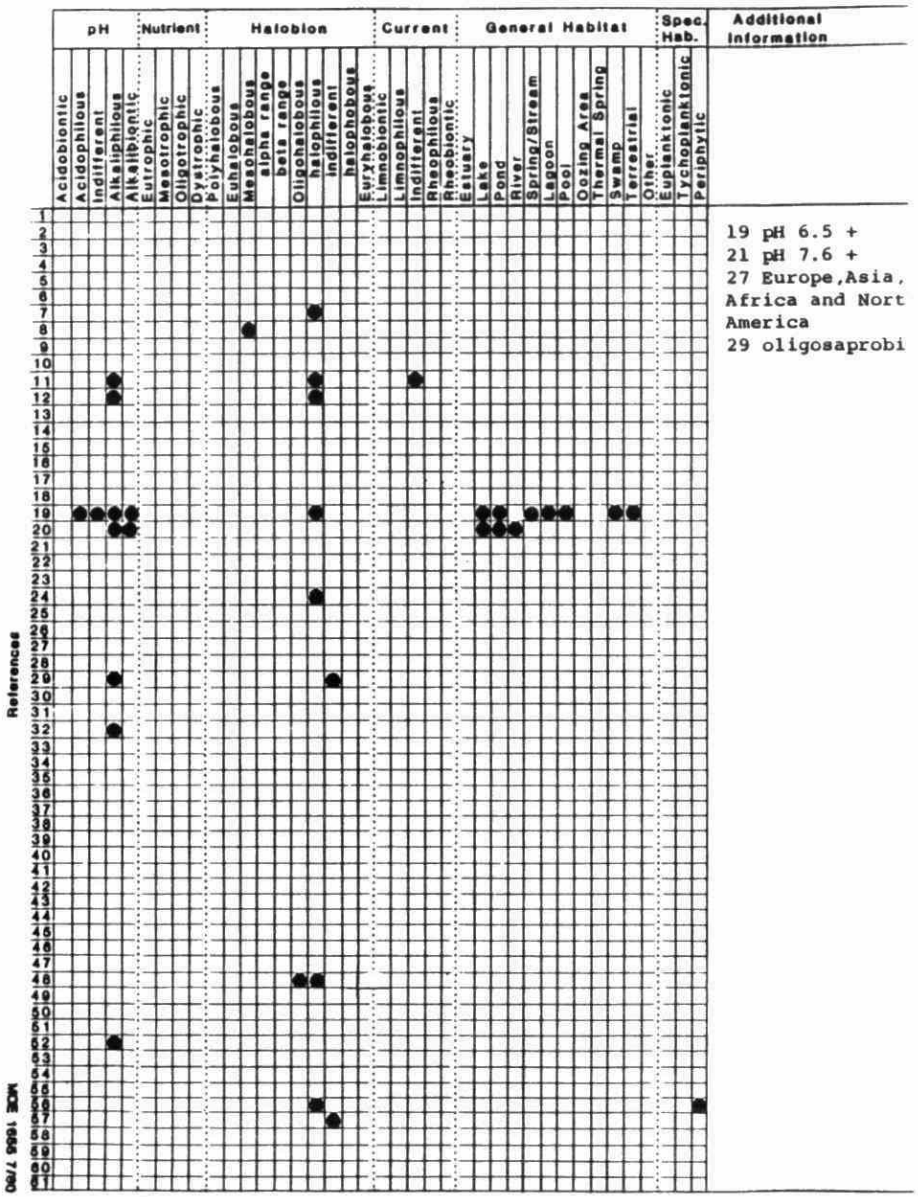
Synonym



Ministry of the Environment
Ontario

Taxon Caloneis amphisbaena (Bory) Cl. var. amphisbaena

Synonym



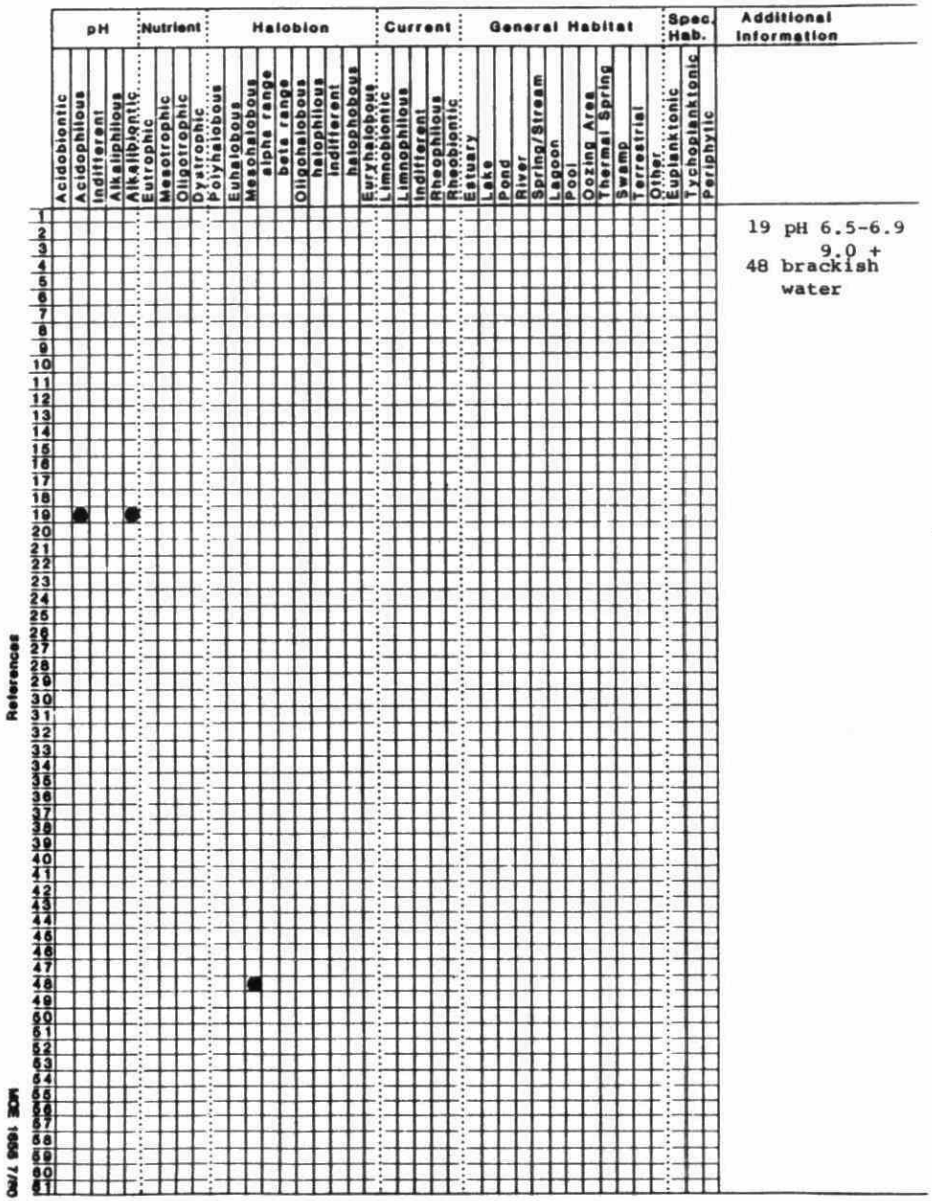
Additional information

19 pH 6.5 +
21 pH 7.6 +
27 Europe,Asia, Africa and Nort America
29 oligosaprobi

Ministry of the Environment
Ontario

Taxon Caloneis amphisbaena var. subsalina (Donk) Cl.

Synonym



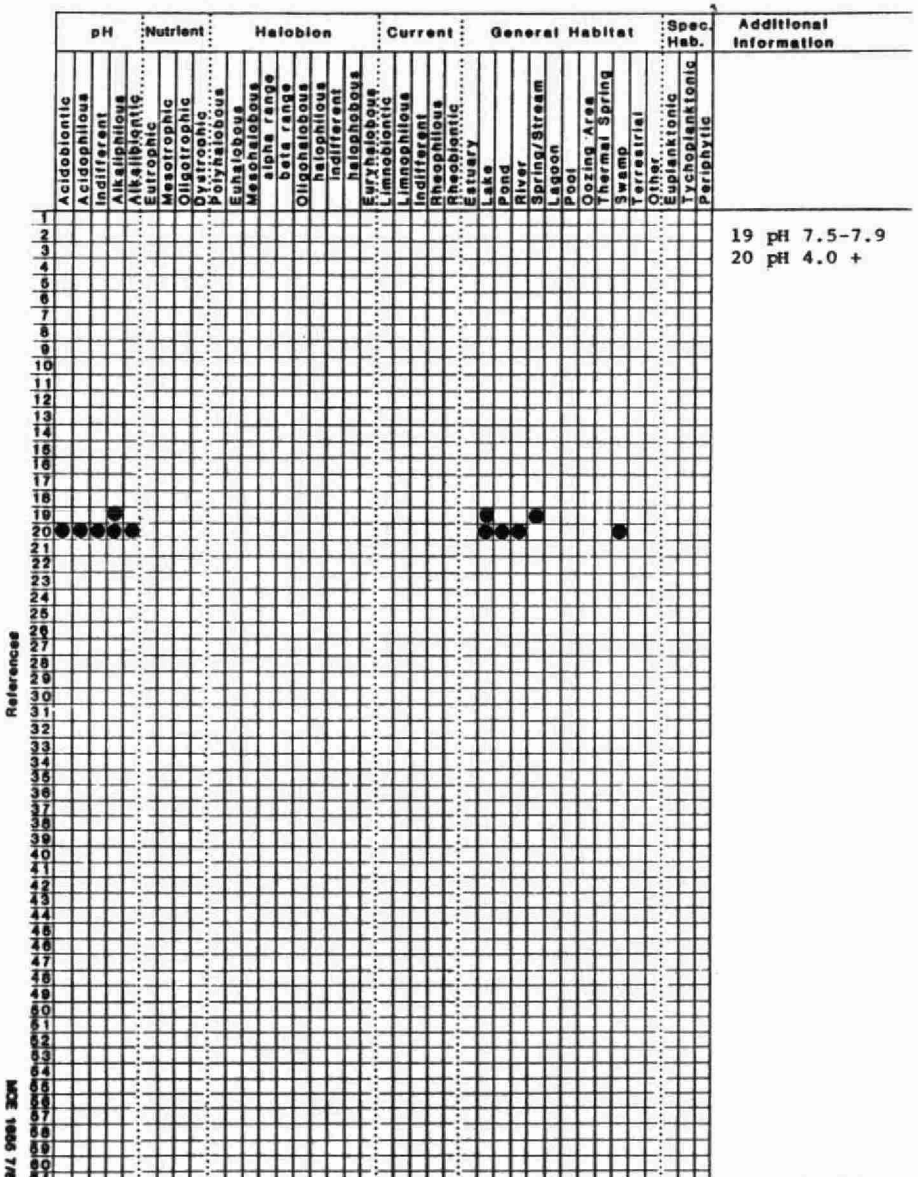
Additional information

19 pH 6.5-6.9
9.0 +
48 brackish water

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Taxon Caloneis bacillaris (Greg.) Cl.

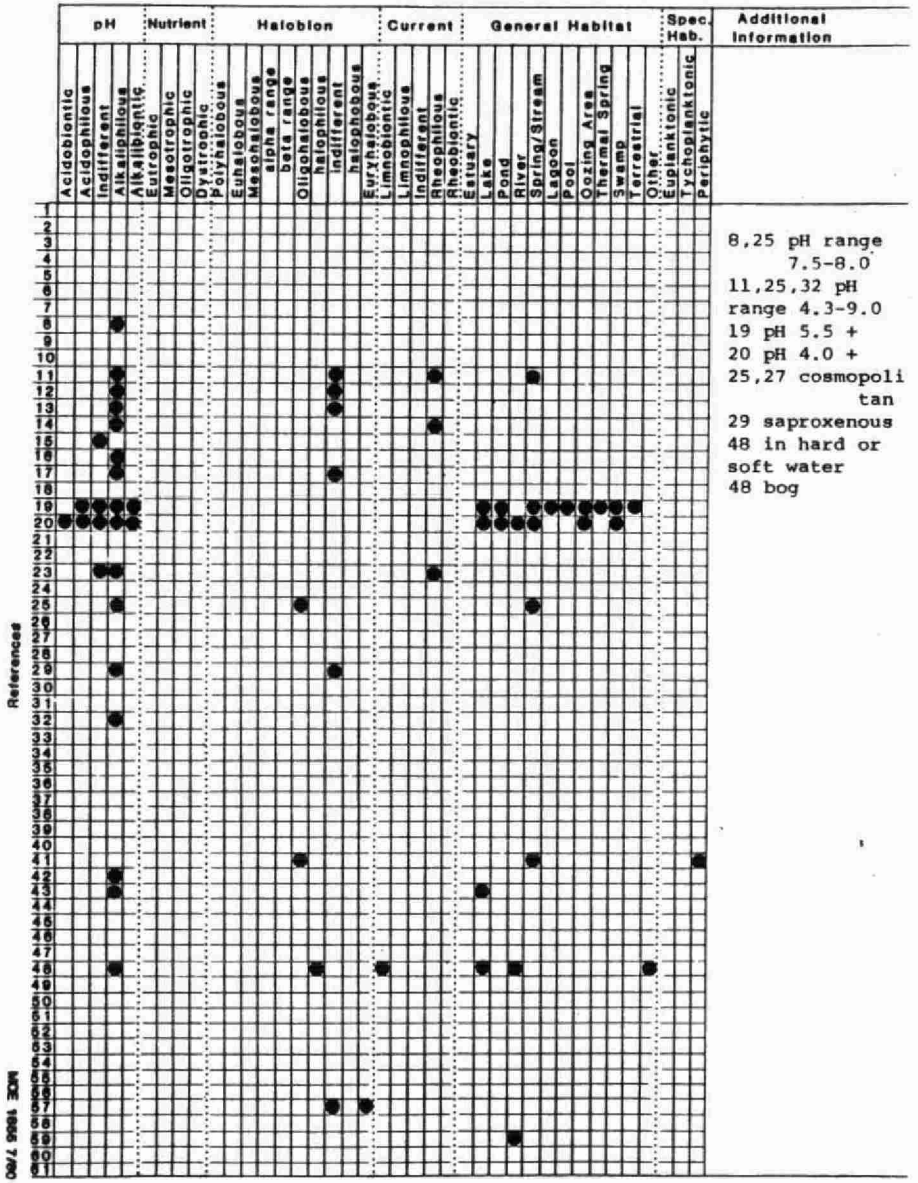
Synonym



Ministry of the Environment
Ontario

Taxon Caloneis bacillum (Grun.) Cl.

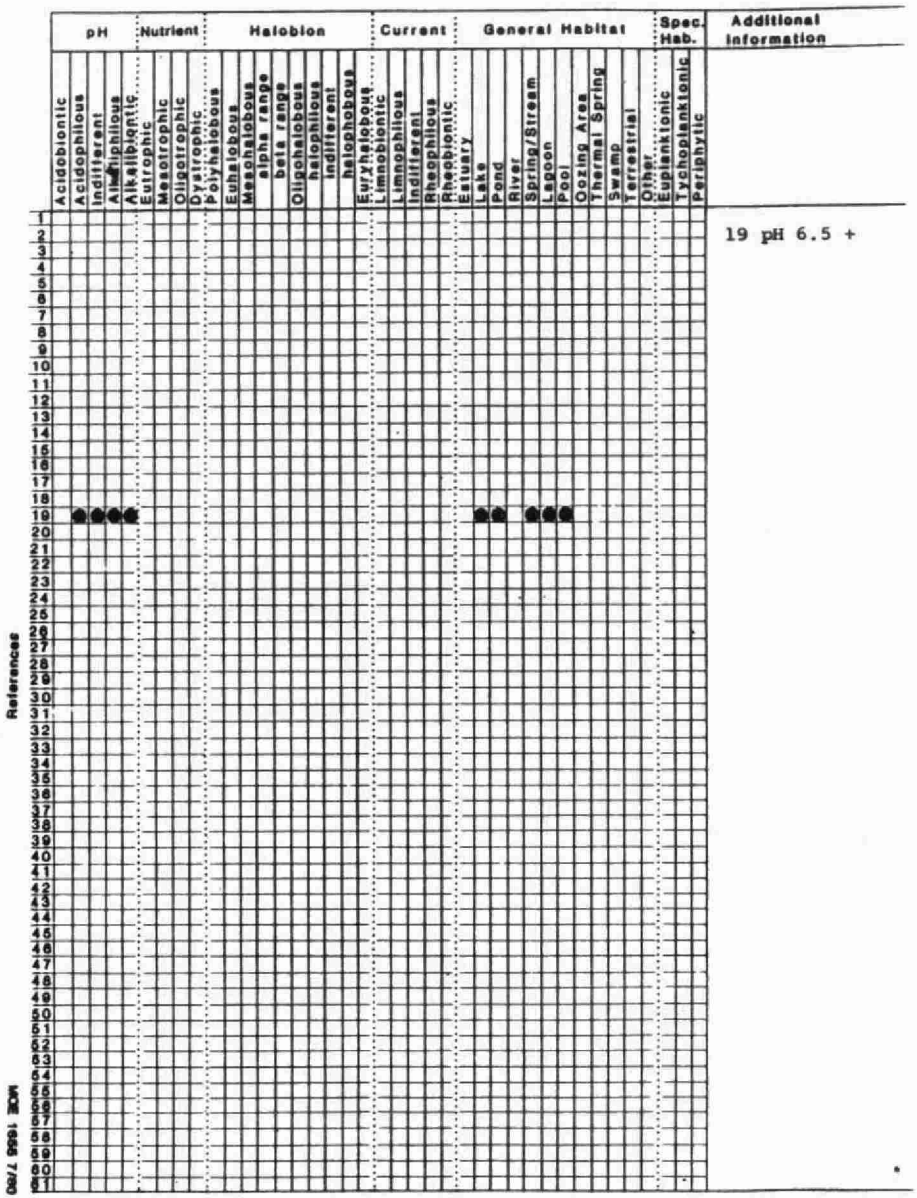
Synonym Caloneis fasciata (Lage.) Cl.



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Taxon Caloneis backmanii Cl.

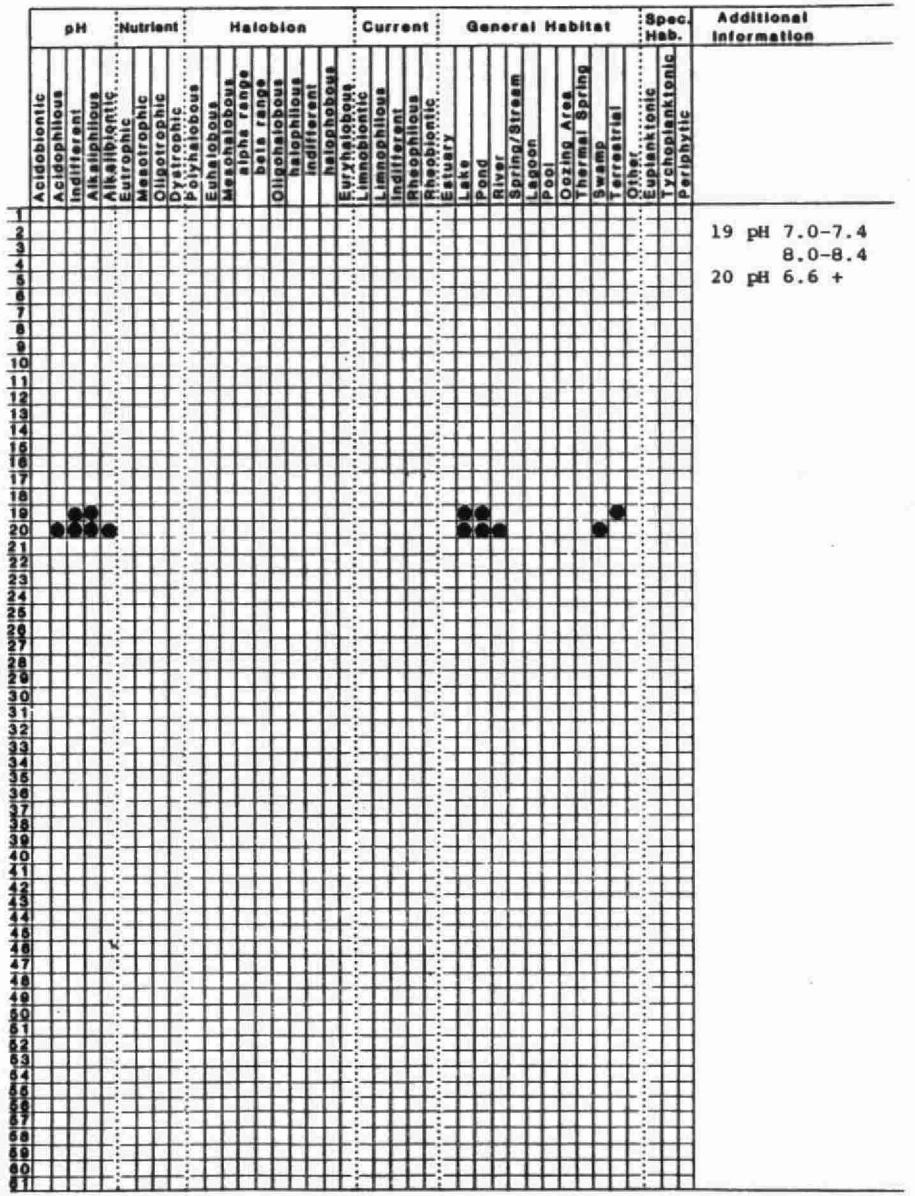
Synonym



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Ontario

Taxon Caloneis clevei (Lager.) Cl.

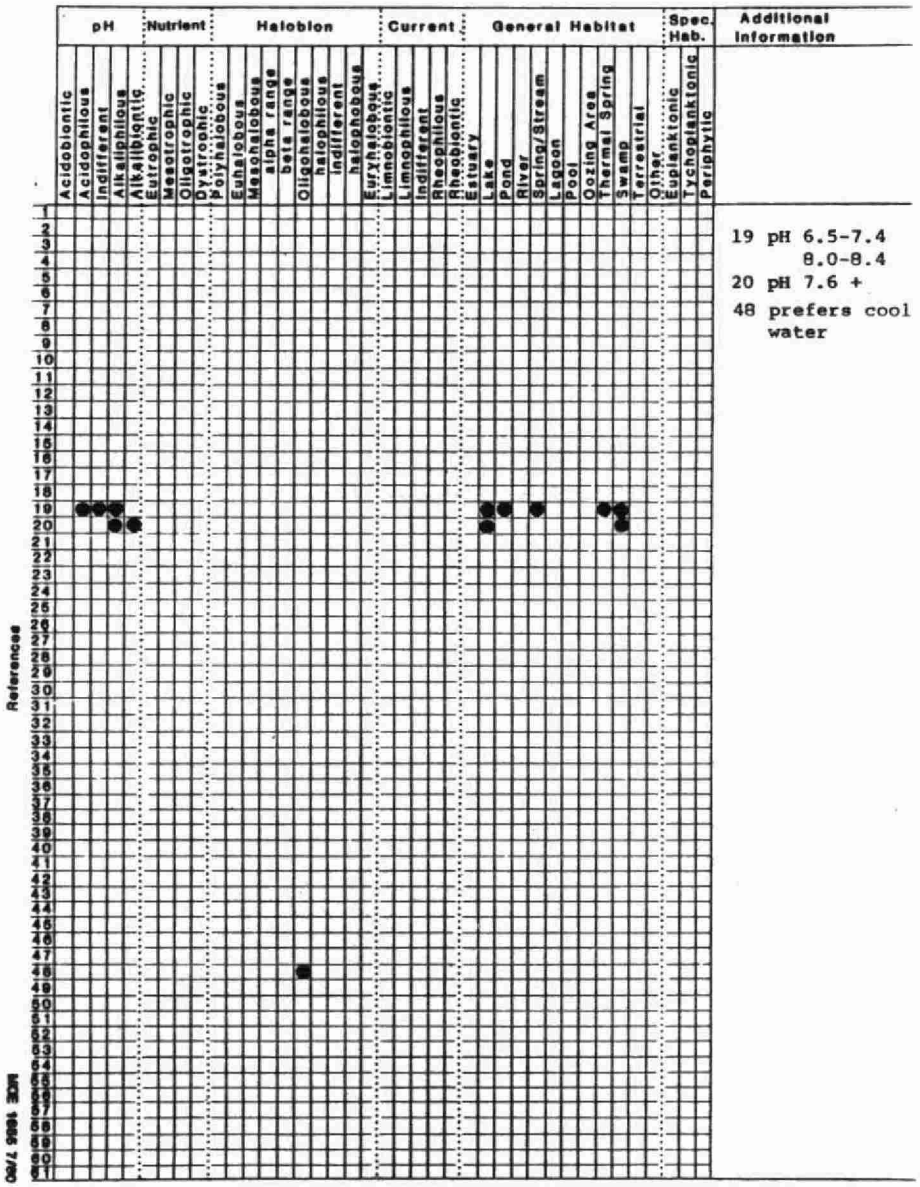
Synonym



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Ontario

Taxon Caloneis hebes (Ralfs) Patr.

Synonym Caloneis obtusa (W. Sm.) Cl.



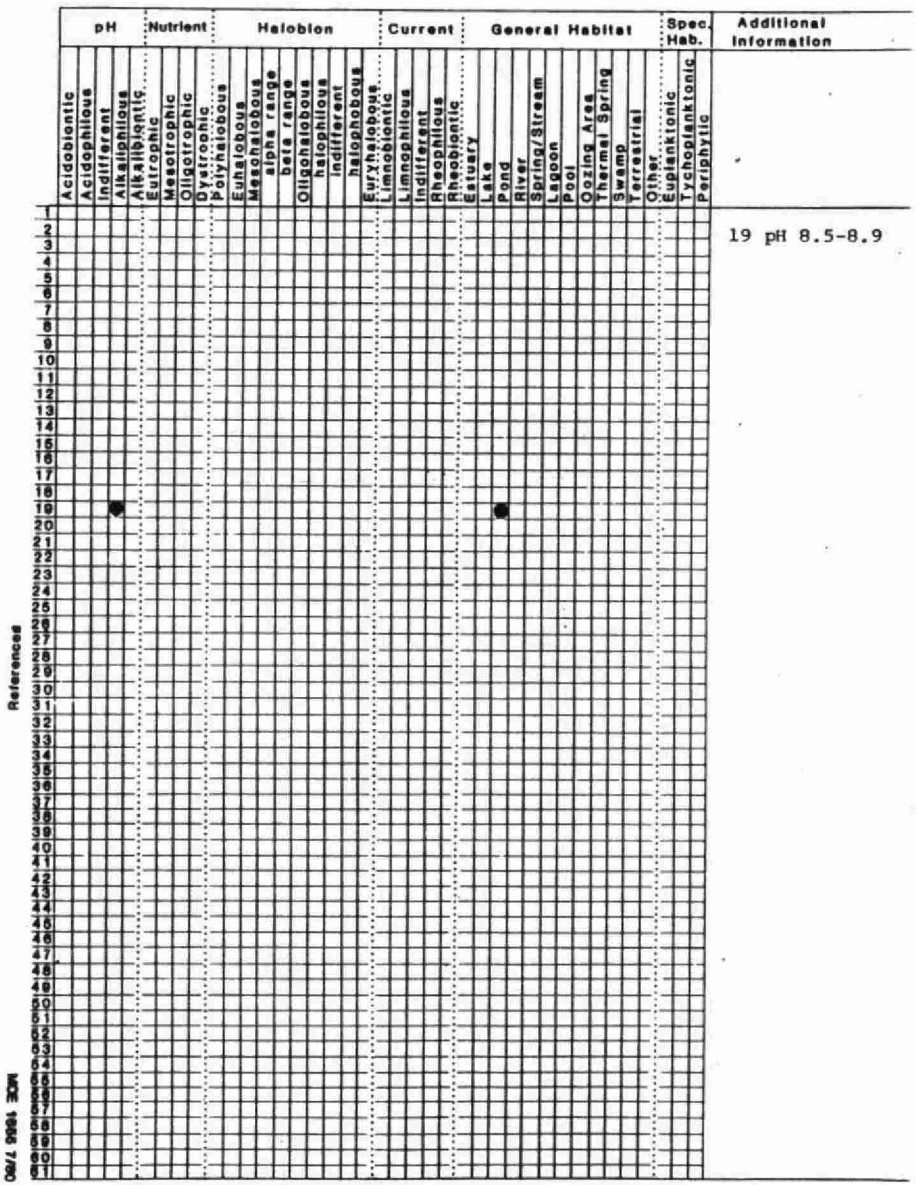
Additional Information

19 pH 6.5-7.4
8.0-8.4
20 pH 7.6 +
48 prefers cool water

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Taxon Caloneis jonssoni Østr.

Synonym



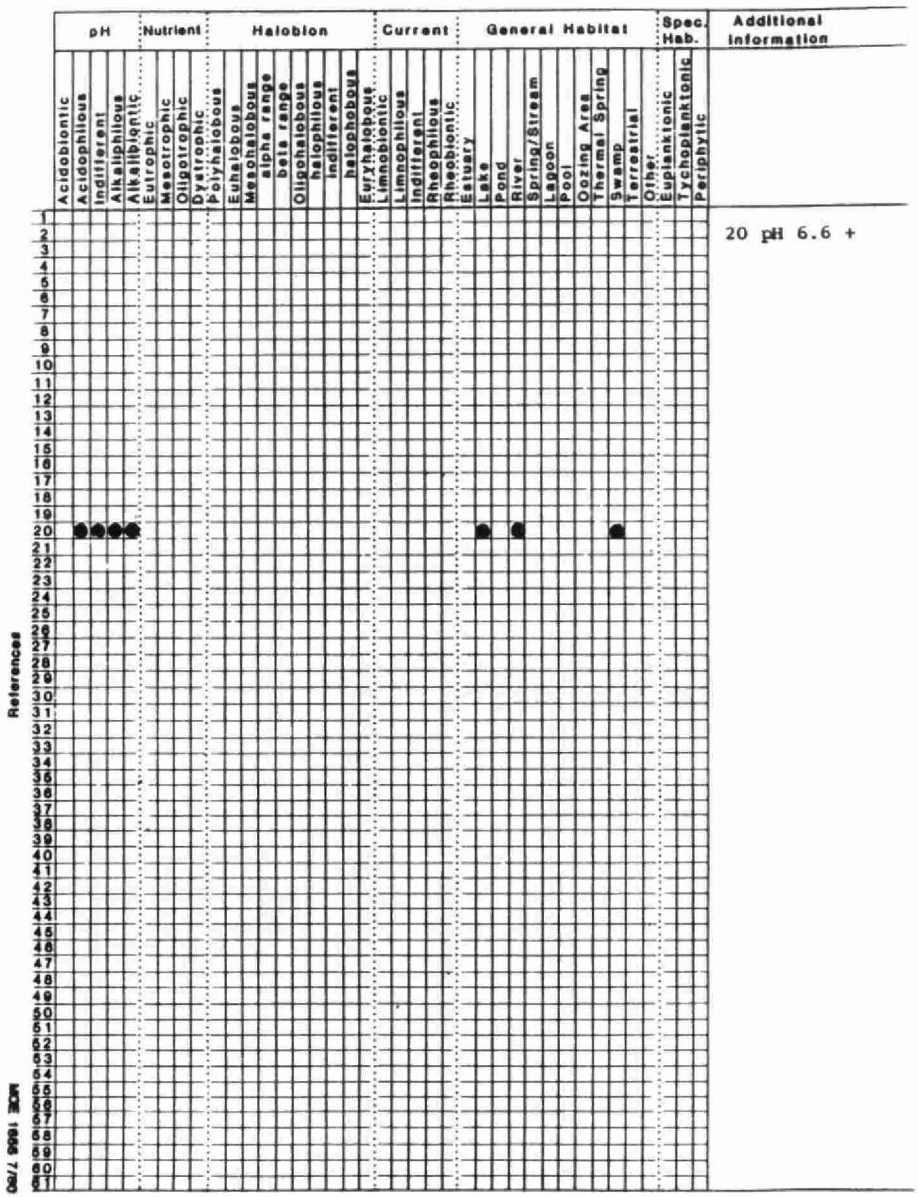
Additional Information

19 pH 8.5-8.9

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Taxon Caloneis latiuscula (Kutz.) Cl. var. latiuscula

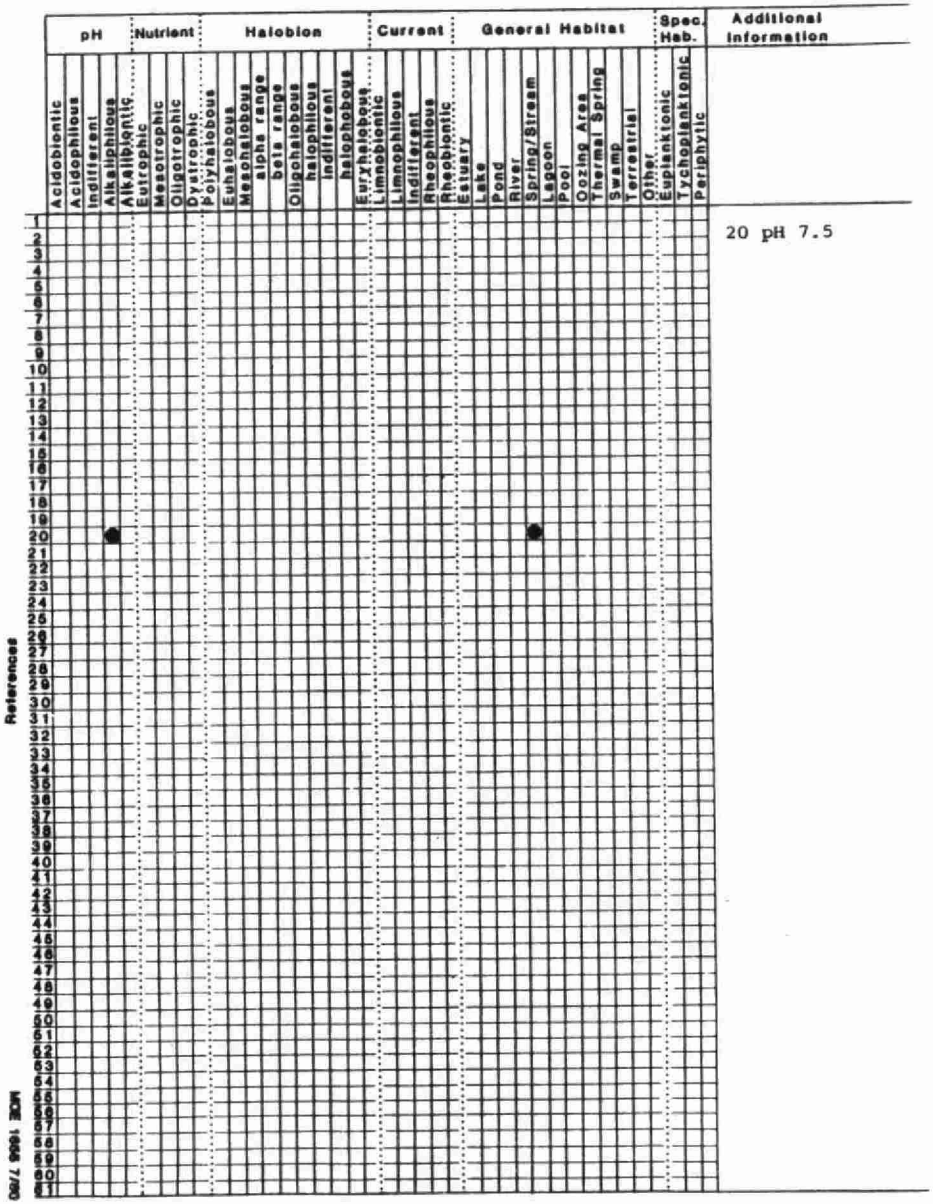
Synonym



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Taxon Caloneis latiuscula var. subholstei Hust.

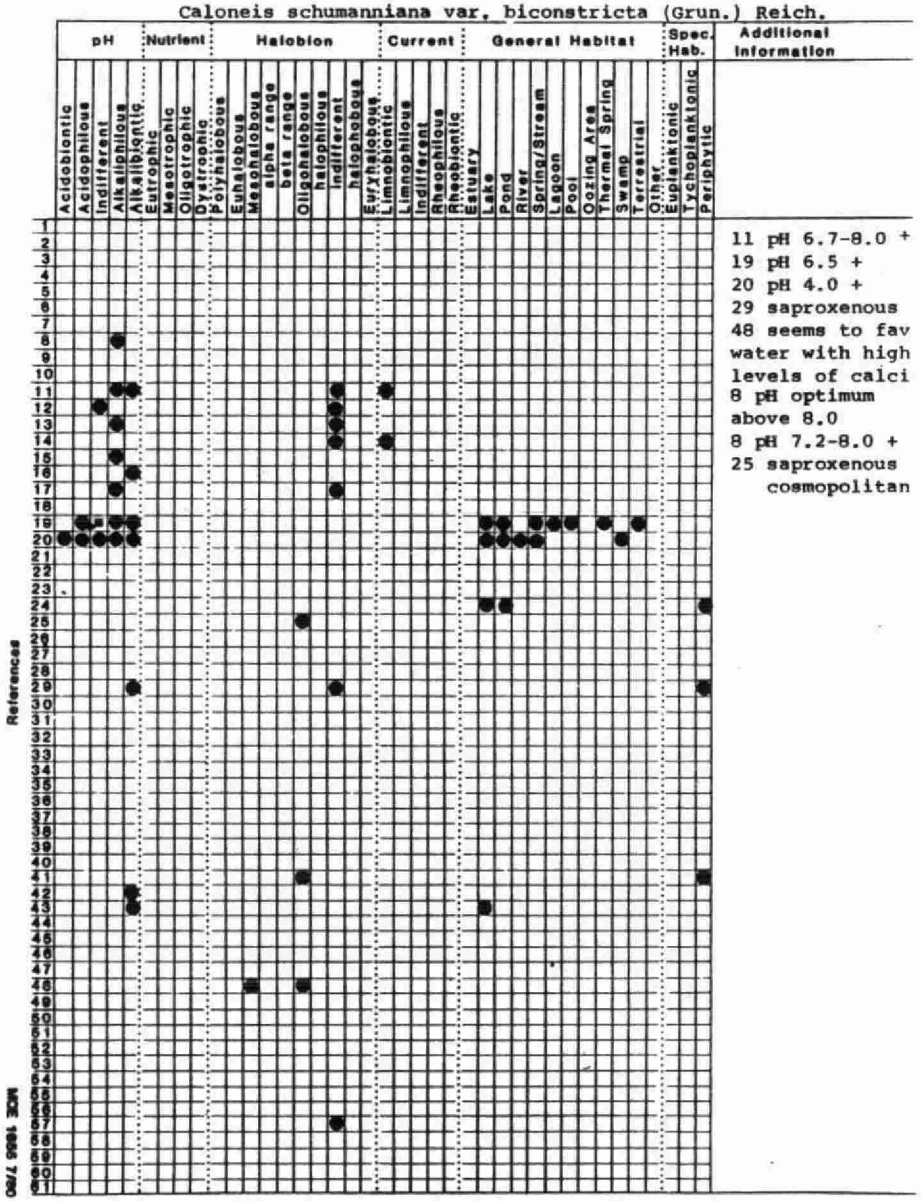
Synonym



Taxon Caloneis limosa (Kutz.) Patr.

Synonym Caloneis schumanniana (Grun.) Cl.

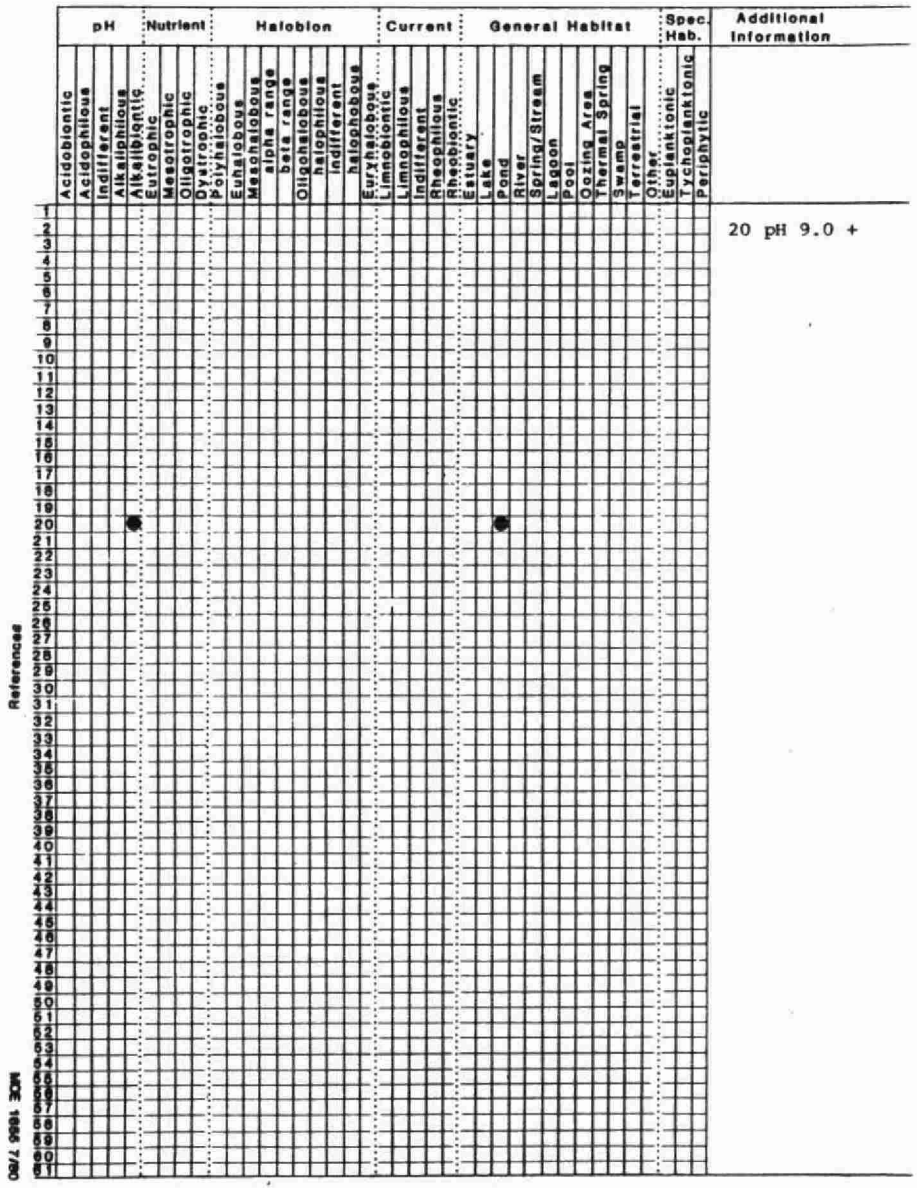
Caloneis schumanniana var. biconstricta (Grun.) Reich.



11 pH 6.7-8.0 +
19 pH 6.5 +
20 pH 4.0 +
29 saproxenous
48 seems to fav water with high levels of calci
8 pH optimum above 8.0
8 pH 7.2-8.0 +
25 saproxenous cosmopolitan

Taxon Caloneis macedonica Hust.

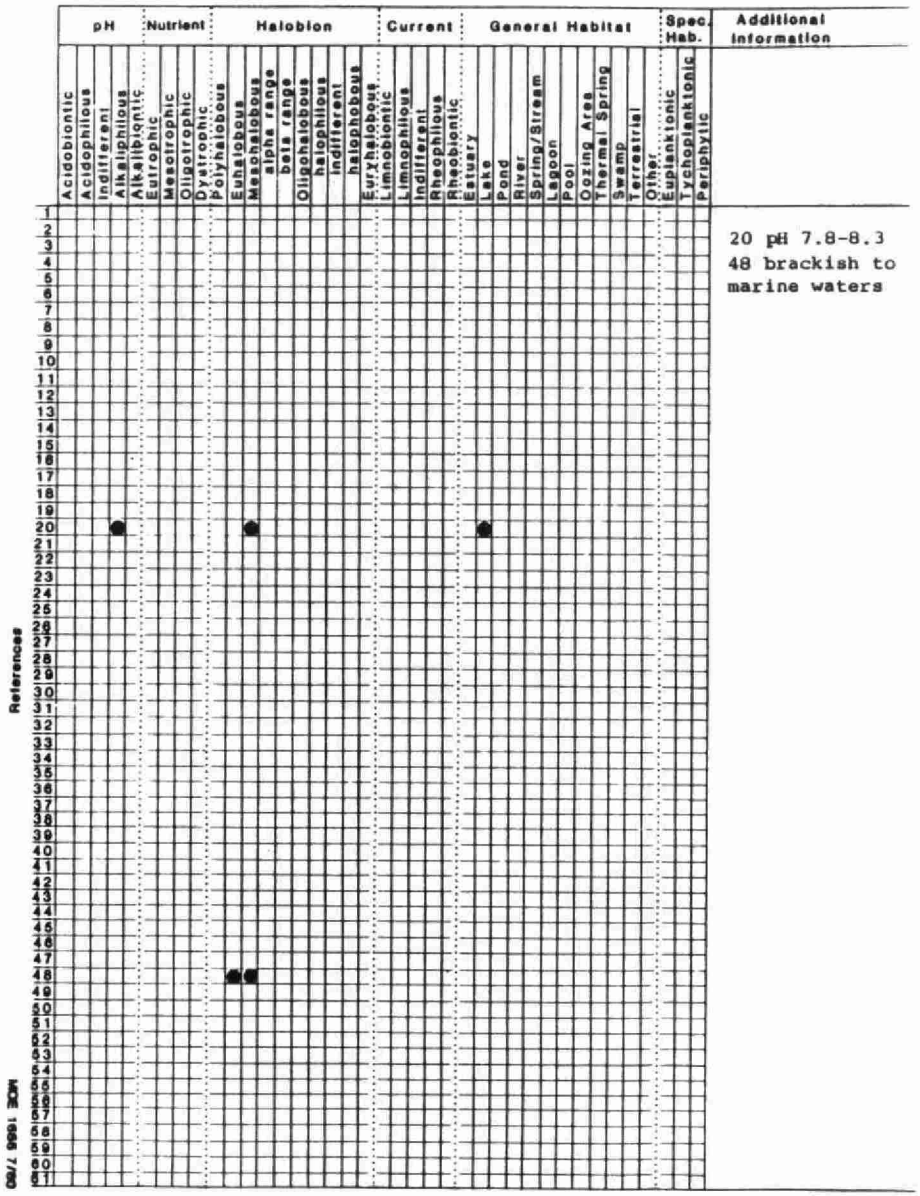
Synonym



20 pH 9.0 +

Taxon Caloneis oregonica (Ehr.) Patr.

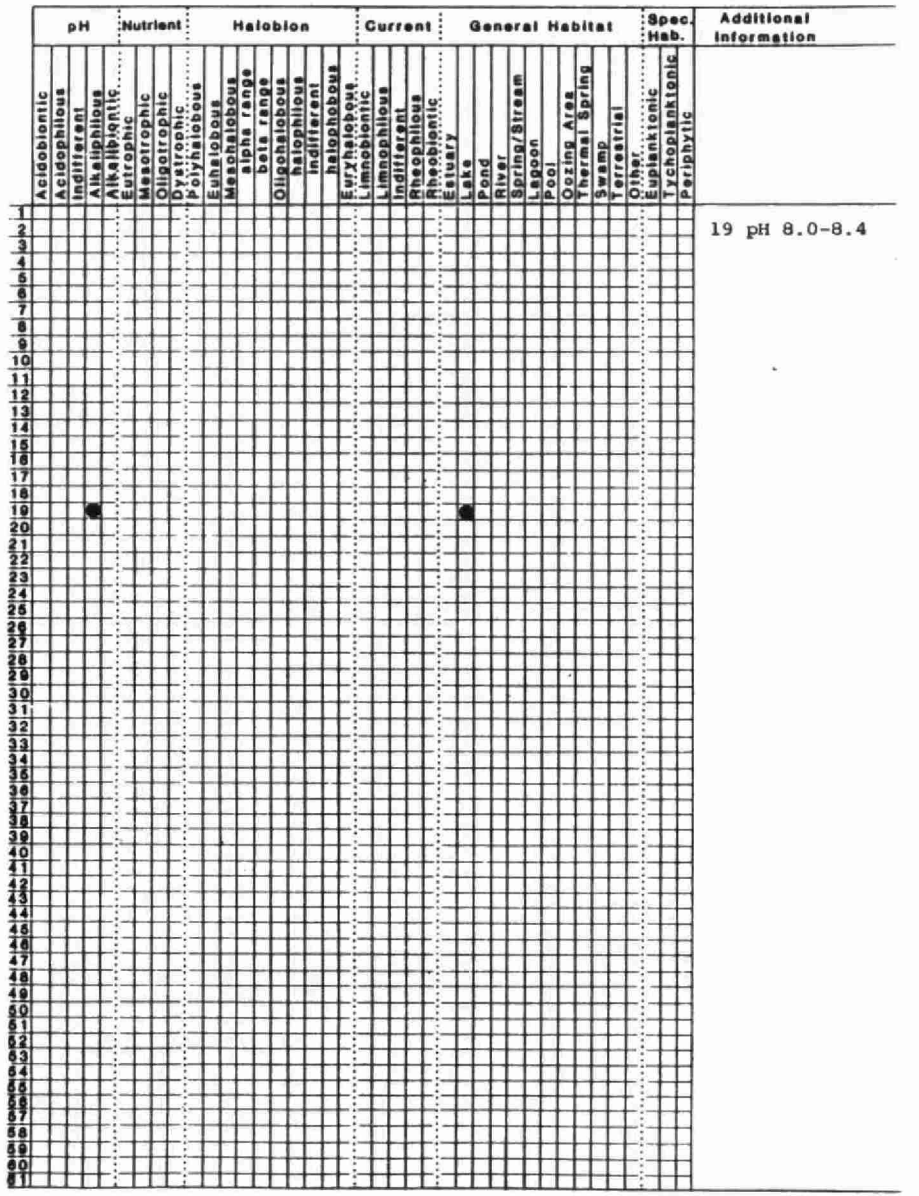
Synonym Caloneis formosa (Greg.) Cl.



20 pH 7.8-8.3
48 brackish to marine waters

Taxon Caloneis schumanniana var. lancettula Hust.

Synonym



19 pH 8.0-8.4

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Ontario

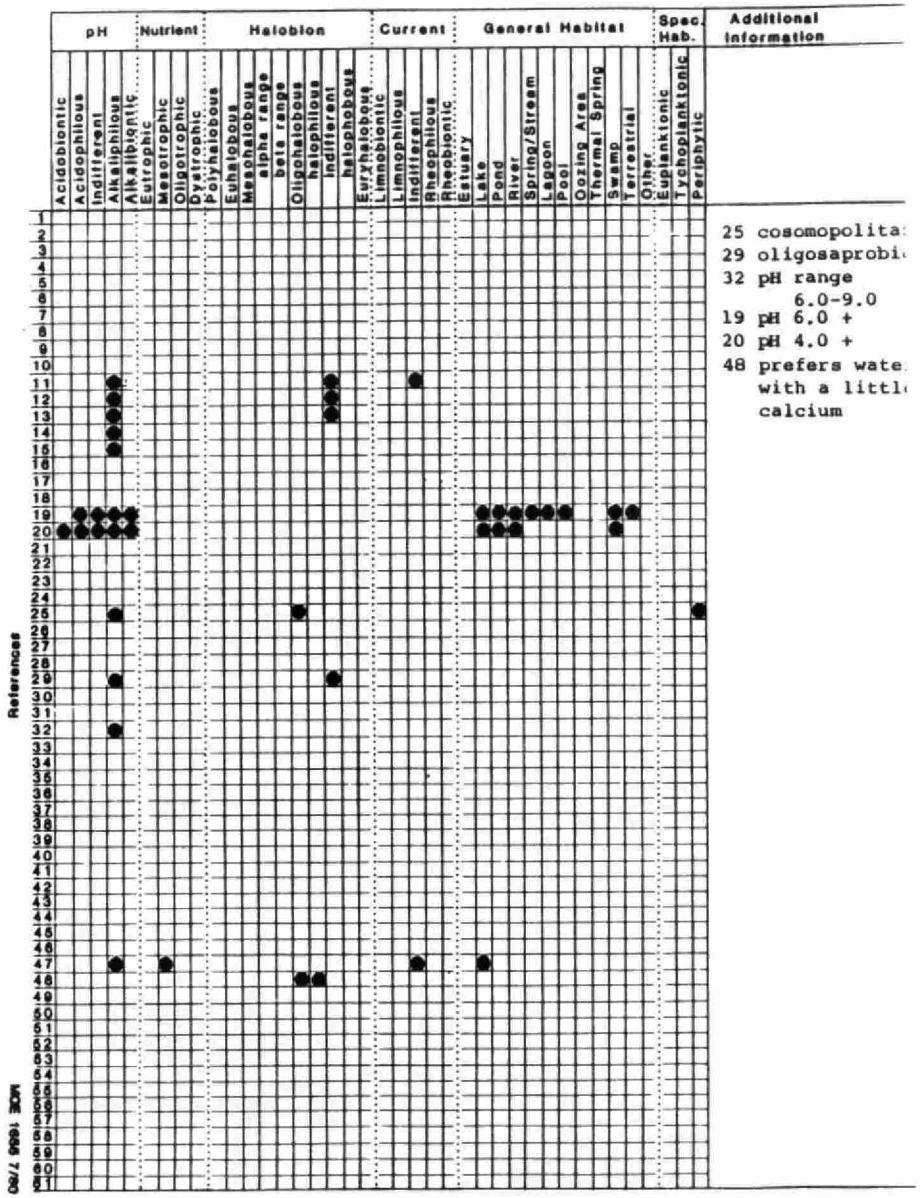
Taxon Caloneis schumanniana f. fontinalis Foged

Synonym

pH						Nutrient				Halobion								Current				General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurytopous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	

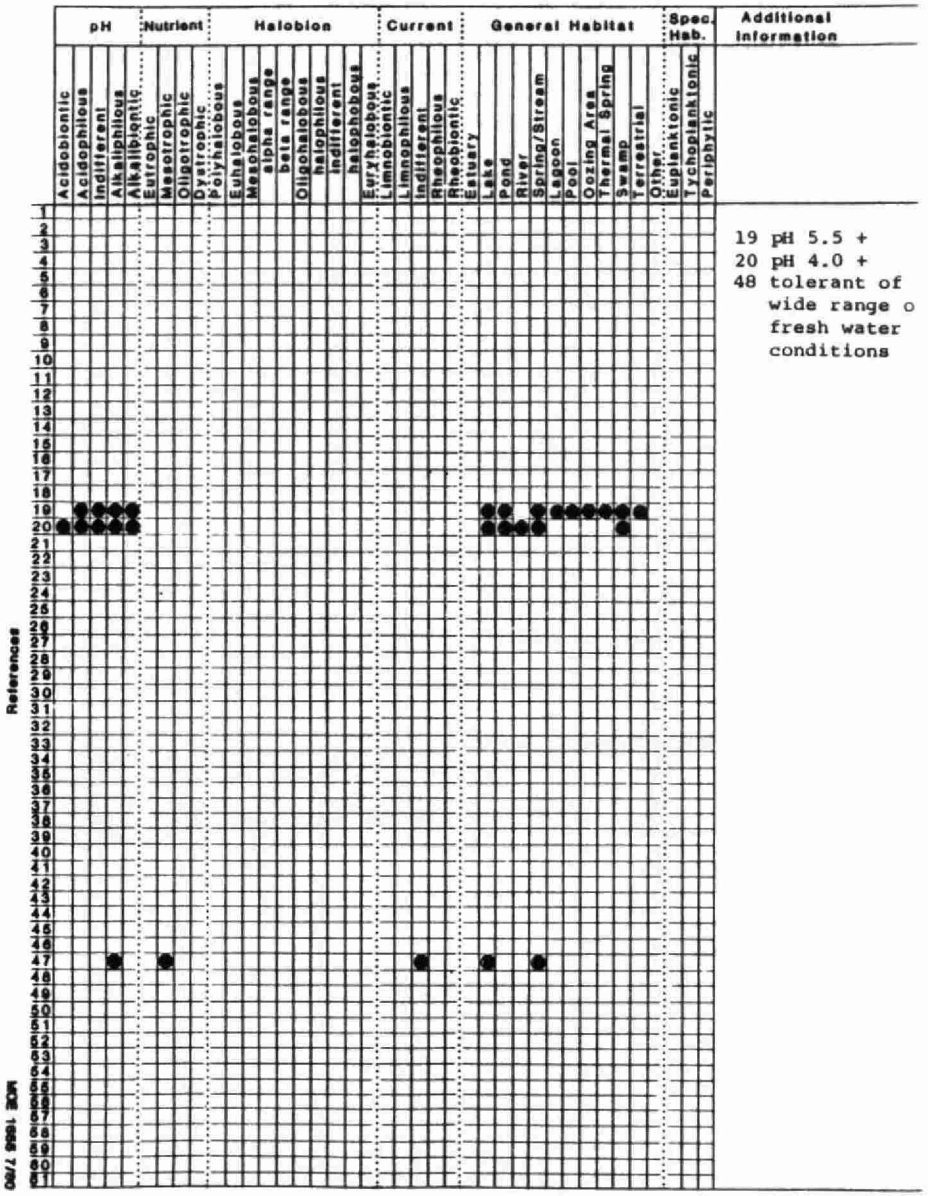
Taxon Caloneis ventricosa var. truncatula (Grun.) Meist.

Synonym Caloneis silicula var. truncatula (Grun.) Cl.



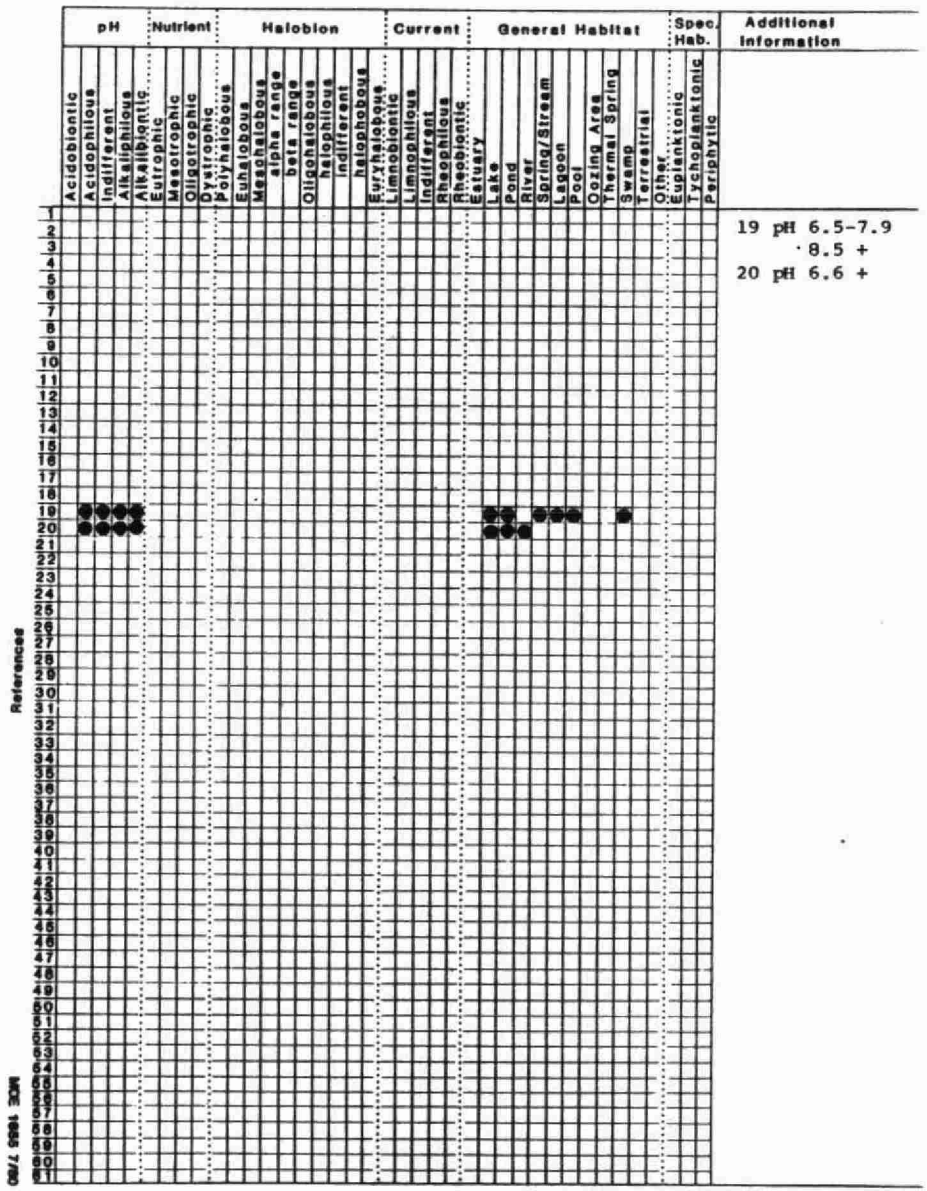
Taxon Caloneis ventricosa (Ehr.) Meist. var. ventricosa

Synonym Caloneis silicula (Ehr.) Cl.



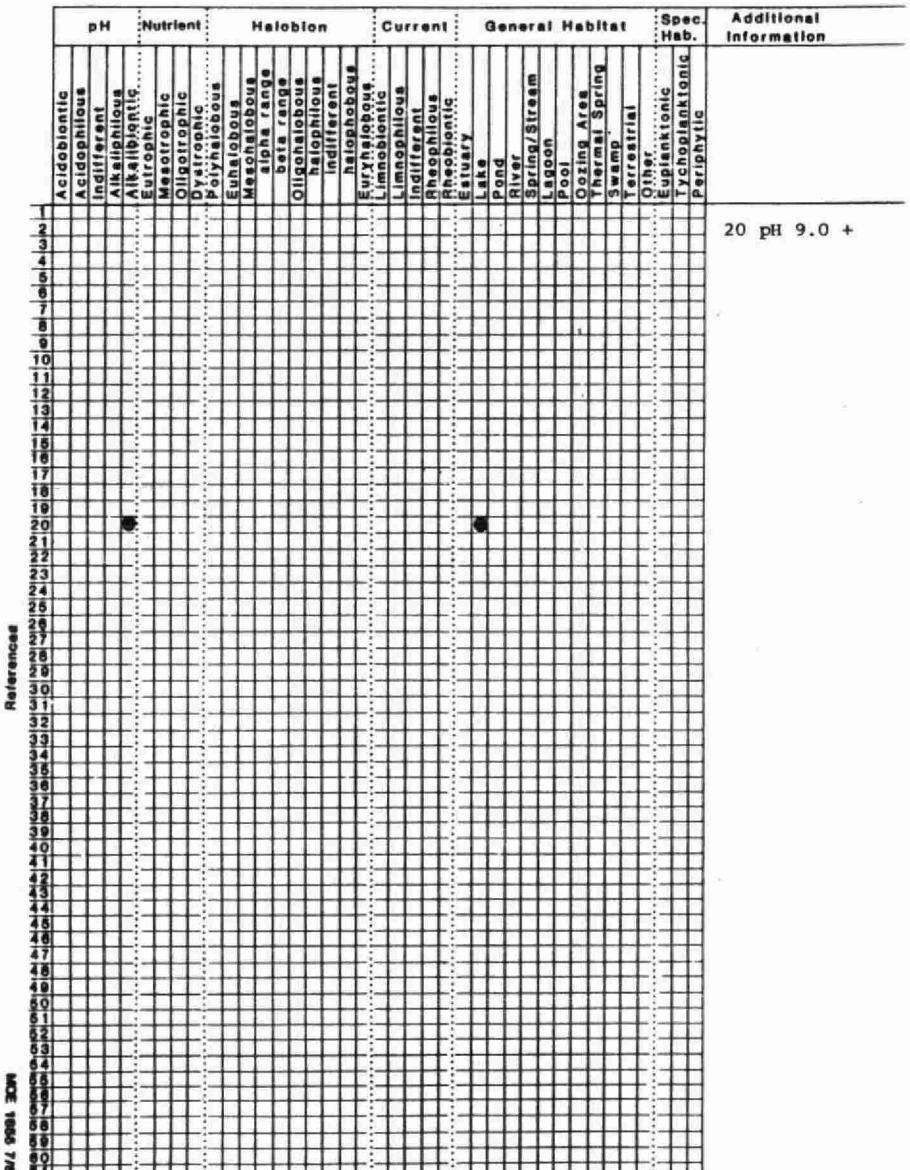
Taxon Campylodiscus noricus var. hibernica (Ehr.) Grun.

Synonym Campylodiscus hibernicus Ehr.



Taxon Campylodiscus noricus Ehr. var. noricus

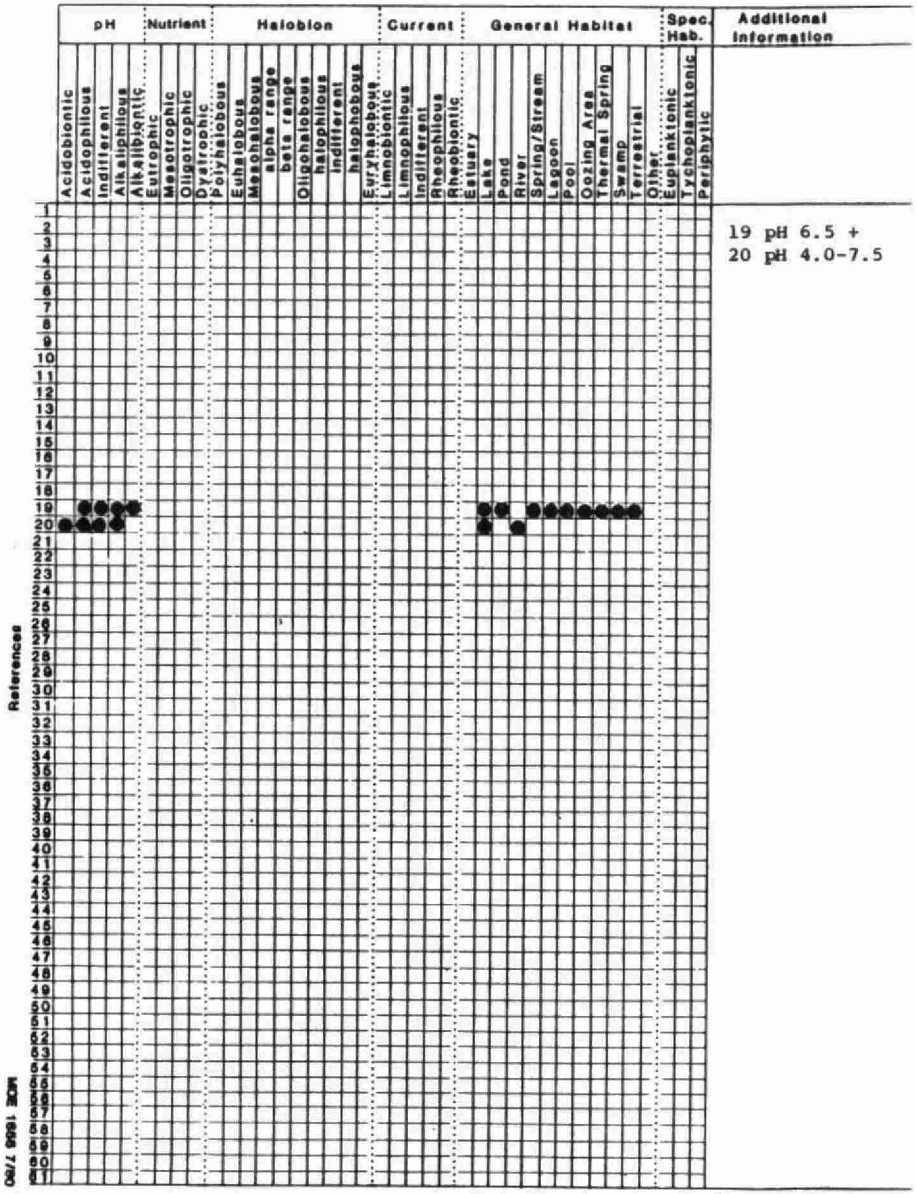
Synonym



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Taxon Ceratoneis arcus var. linearis Holm.

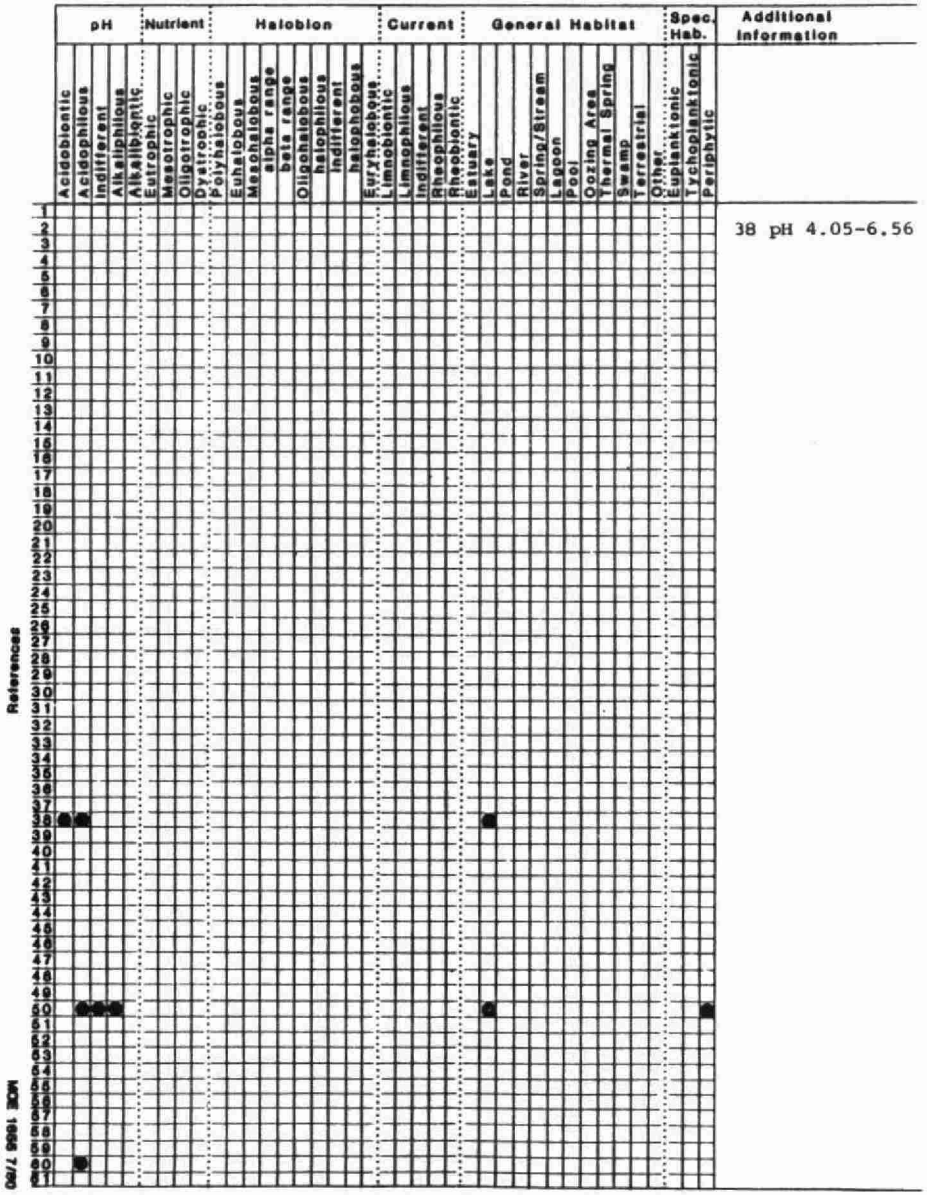
Synonym



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Taxon Cocconeis sp.

Synonym



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Ontario

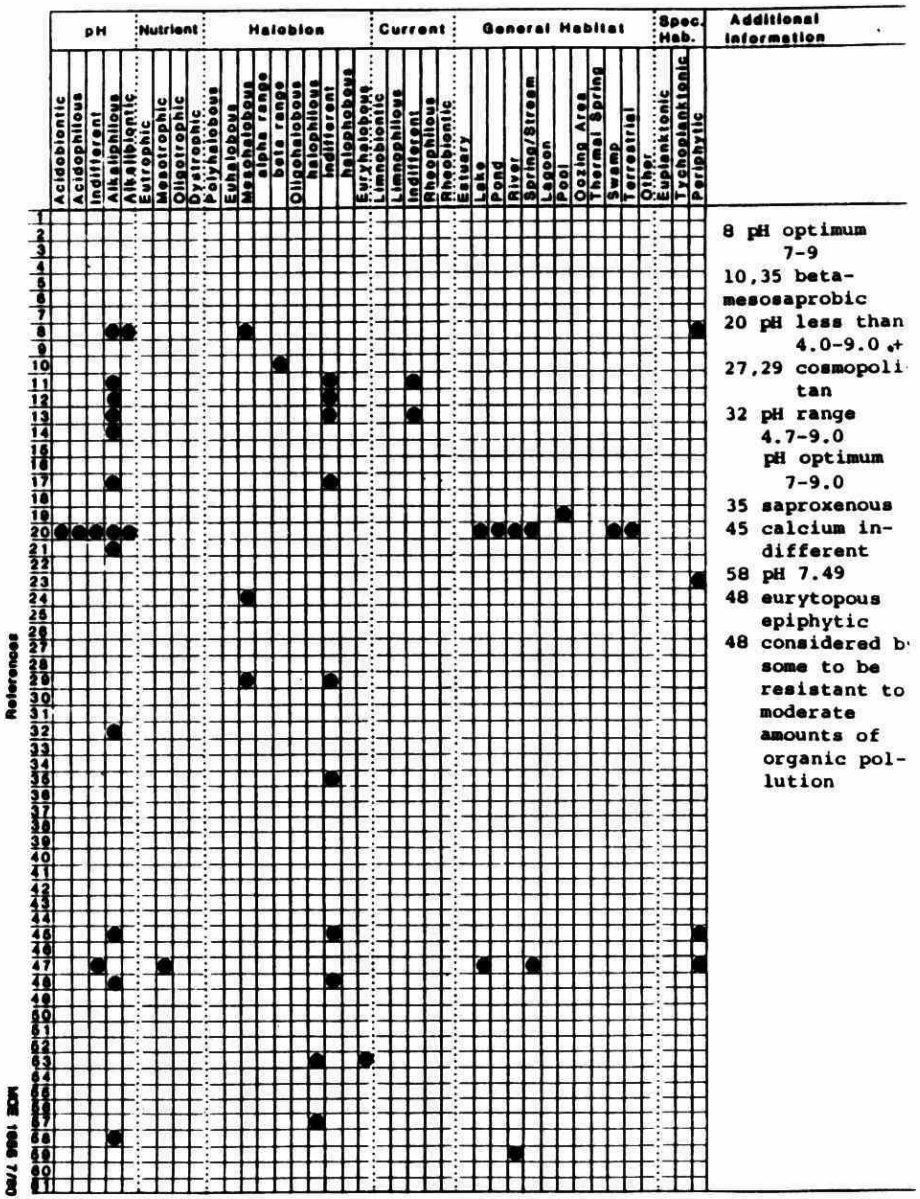
Taxon Cocconeis diminuta Pant.

Synonym

pH						Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	

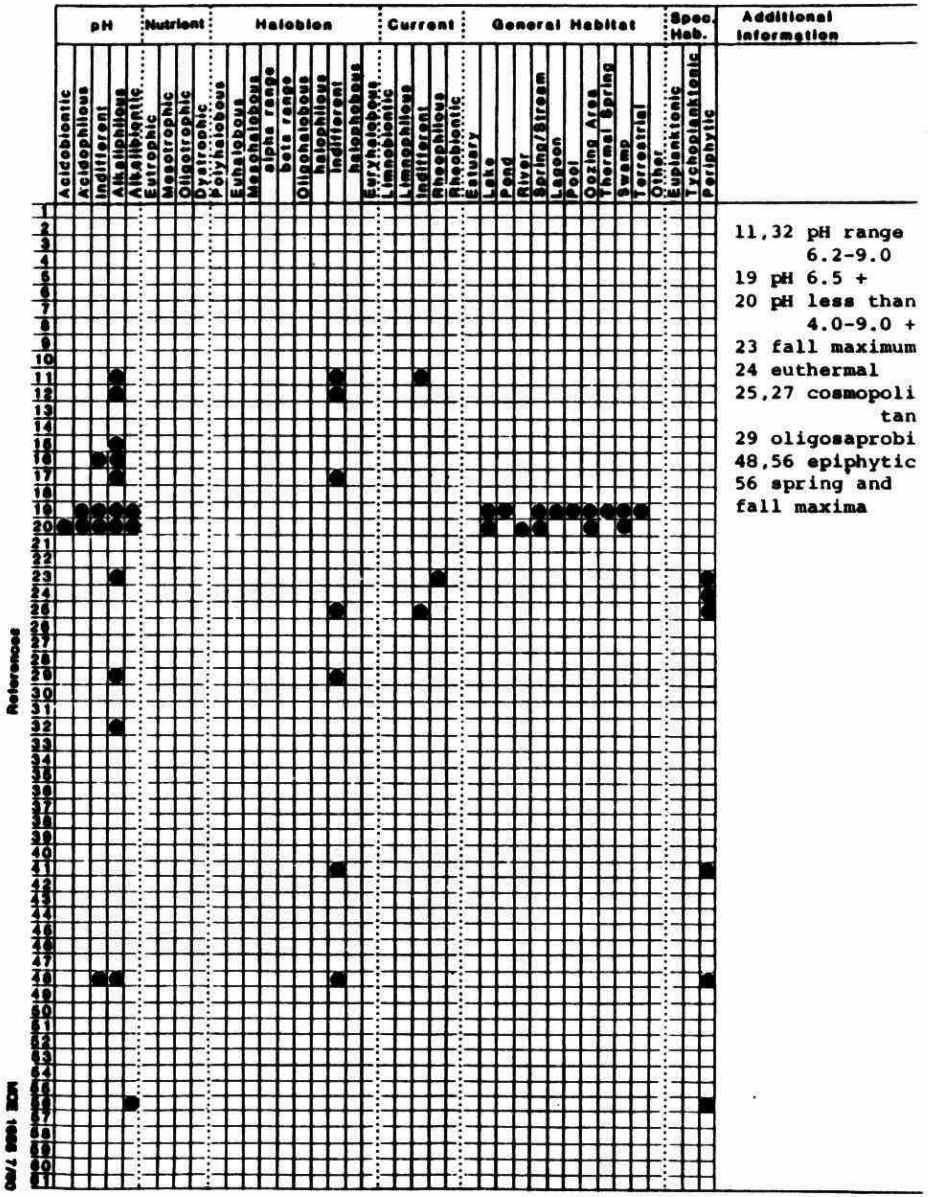
Taxon Cocconeis pediculus Ehr.

Synonym Cocconeis communis Heib.



Taxon Cocconeis placentula var. euglypta (Ehr.) Cl.

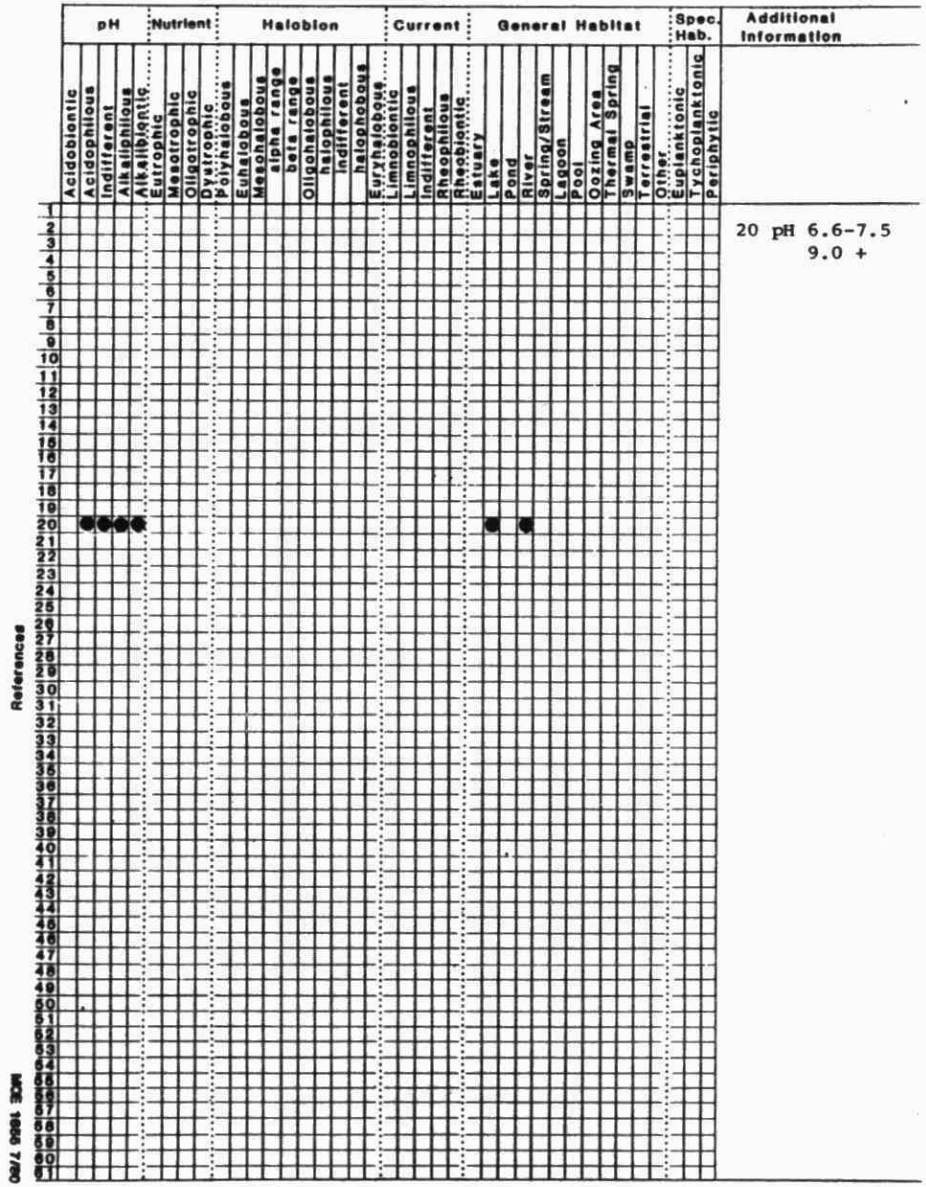
Synonym Cocconeis euglypta Ehr.



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Taxon Cocconeis placentula var. klinoraphis Geit.

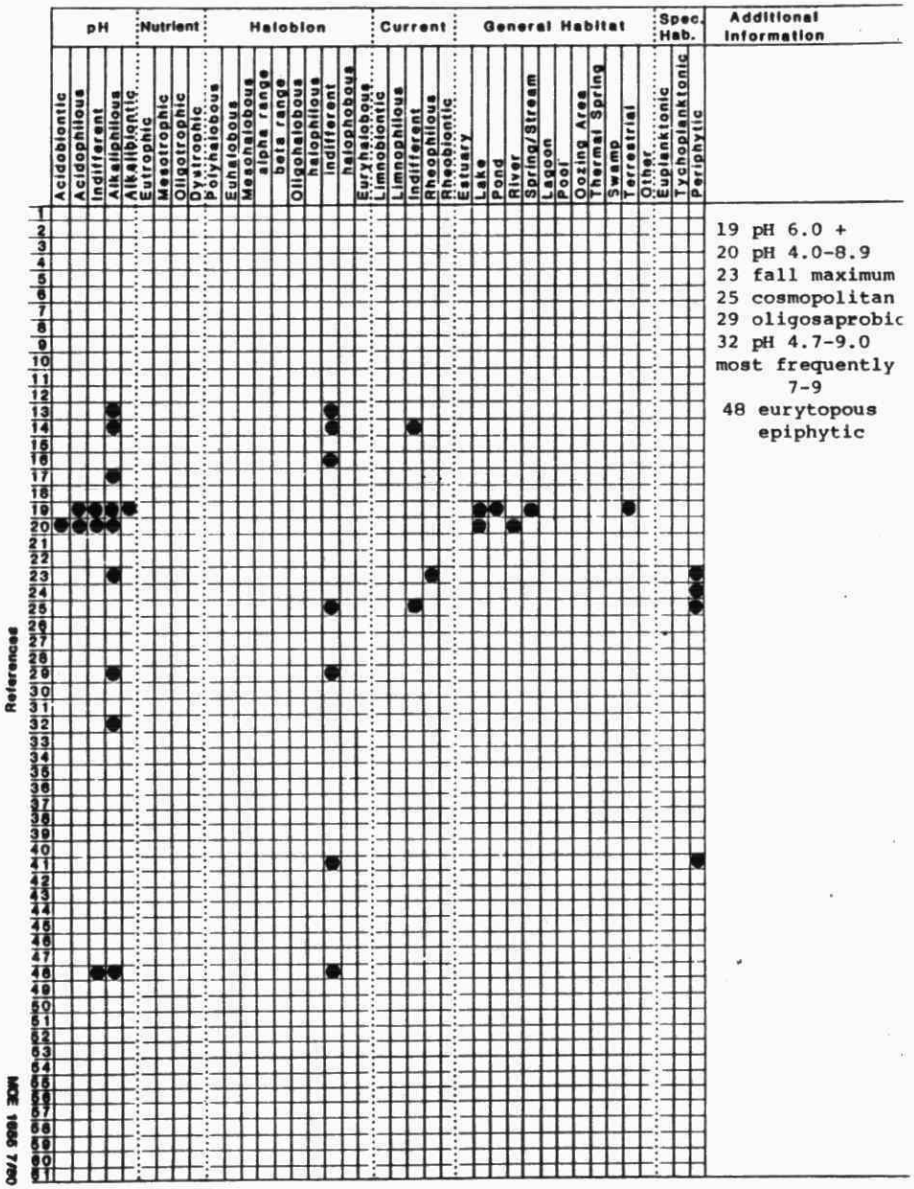
Synonym



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Ontario

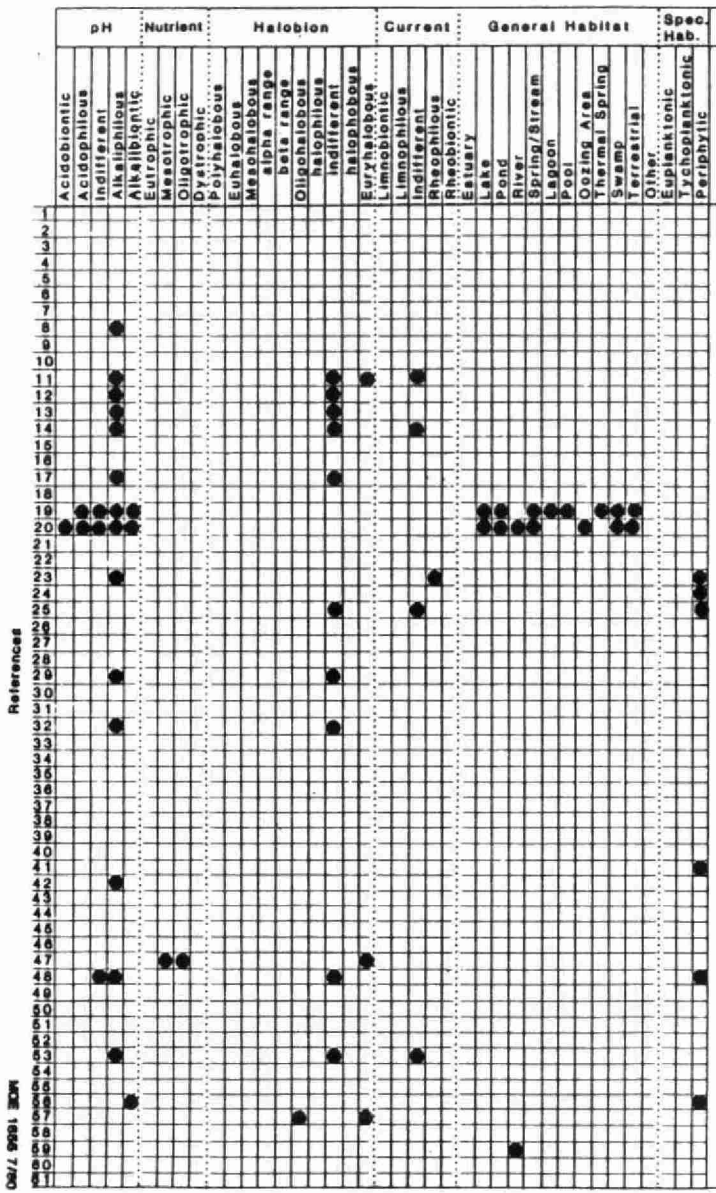
Taxon Cocconeis placentula var. lineata (Ehr.) V. Heurck

Synonym Cocconeis lineata Ehr.



Taxon Cocconeis placentula Ehr. var. placentula

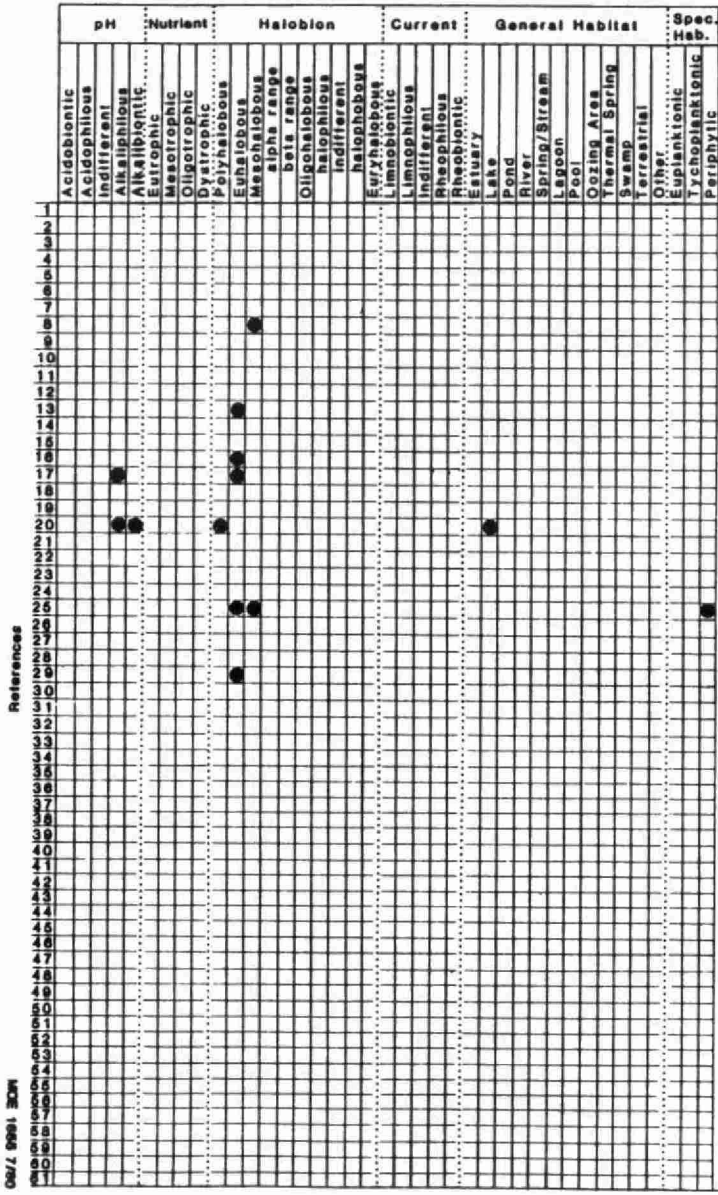
Synonym



8 pH optimum around 8
10 alpha-meso-saprobic
11,32 pH range 4.7-9.0
19 pH range 6.0
20 pH range les than 4.0-9.0+
23,29 oligo-saprobic
23,56 fall maximum
25,27 cosmopoli tan
45 calcium in-different
48,56 epiphytic
56 spring maxi-mum
48 eurytopous

Taxon Cocconeis scutellum Ehr. var. scutellum

Synonym

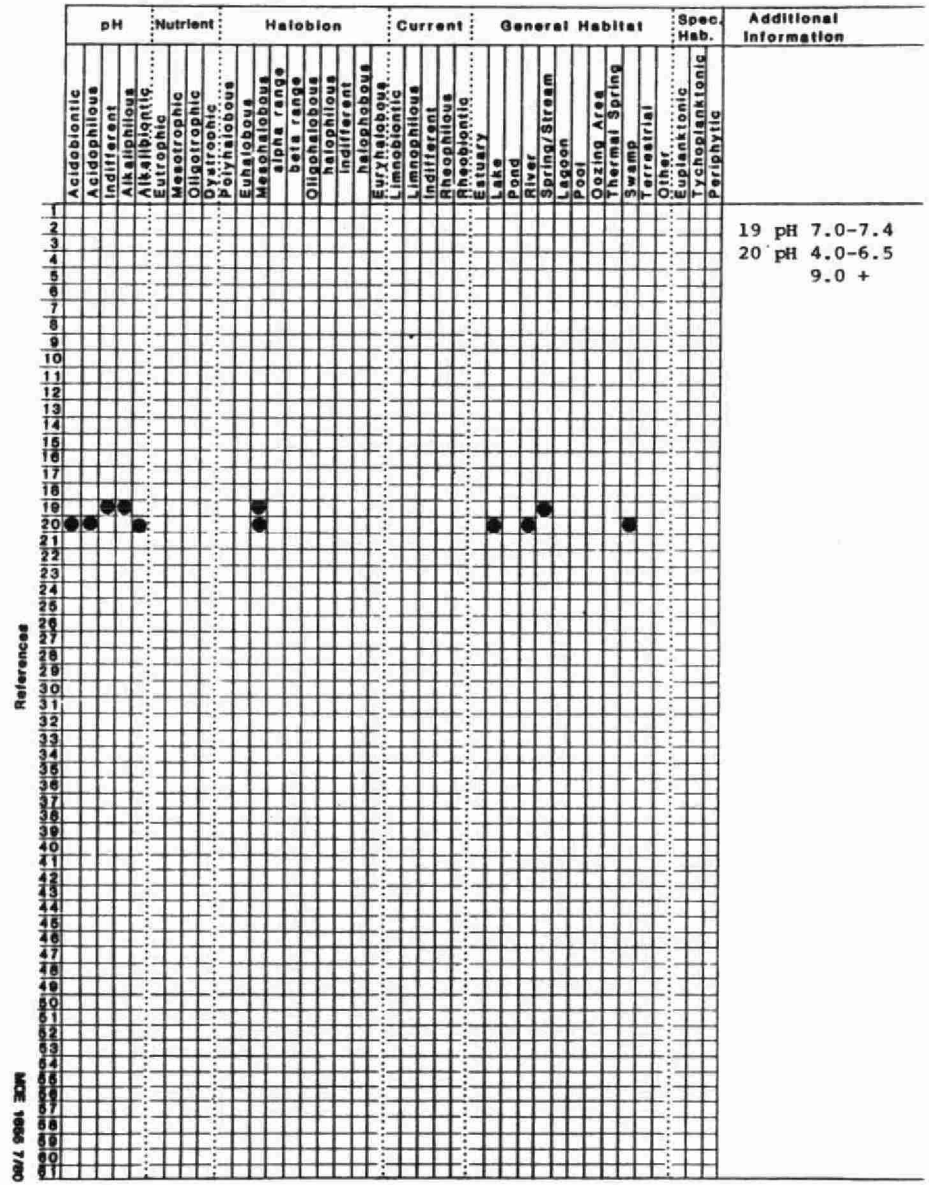


20 pH 7.6 +
25 cosmopolitan

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Taxon Cocconeis scutellum f. parva Grun.

Synonym Cocconeis scutellum var. parva Grun.,? 19,20

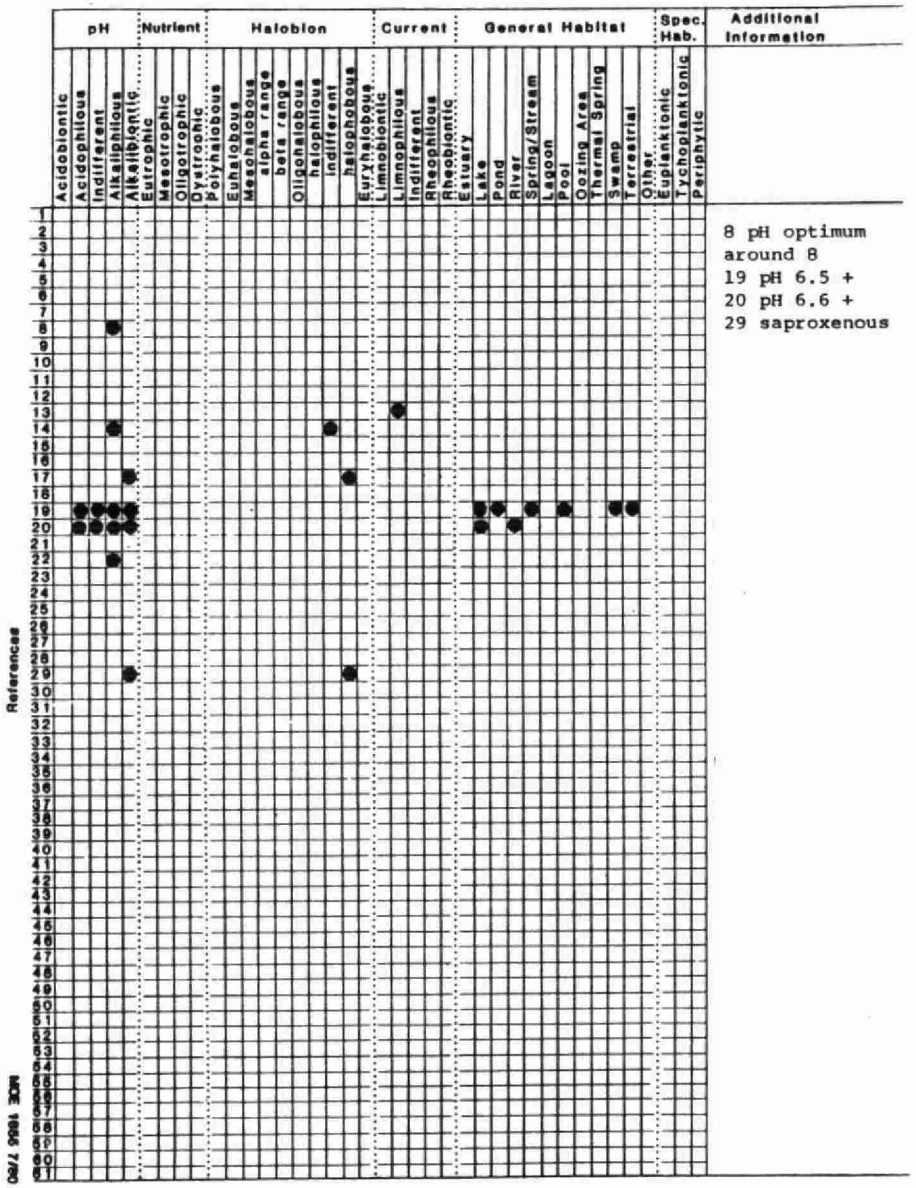


19 pH 7.0-7.4
20 pH 4.0-6.5
9.0 +

Ministry of the Environment
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Taxon Cocconeis thumensis A. Mayer

Synonym

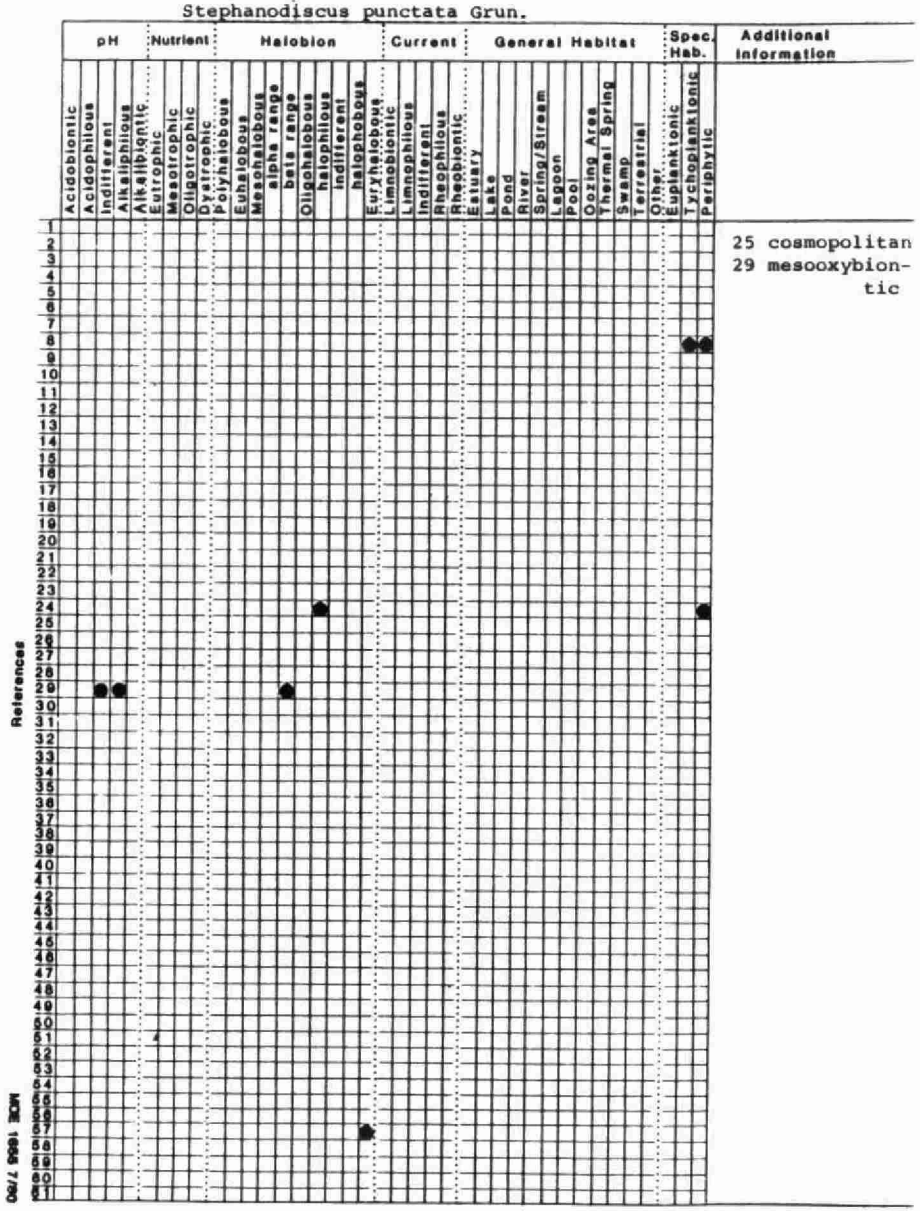


8 pH optimum around 8
19 pH 6.5 +
20 pH 6.6 +
29 saproxenous

Taxon Coscinodiscus lacustris Grun.

Synonym Cyclotella punctata W. Smith.

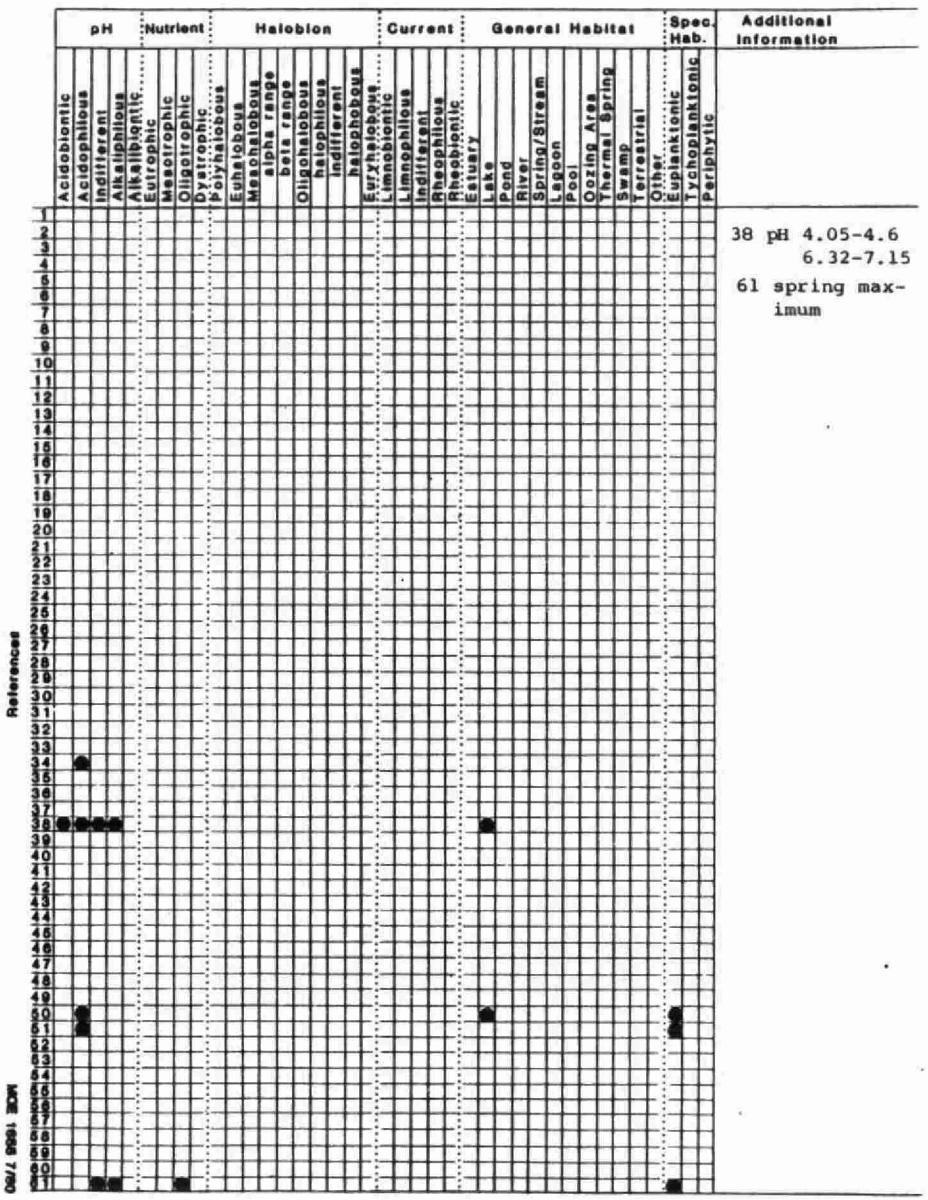
Stephanodiscus punctata Grun.



25 cosmopolitan
29 mesooxybiontic

Taxon Cyclotella sp.

Synonym

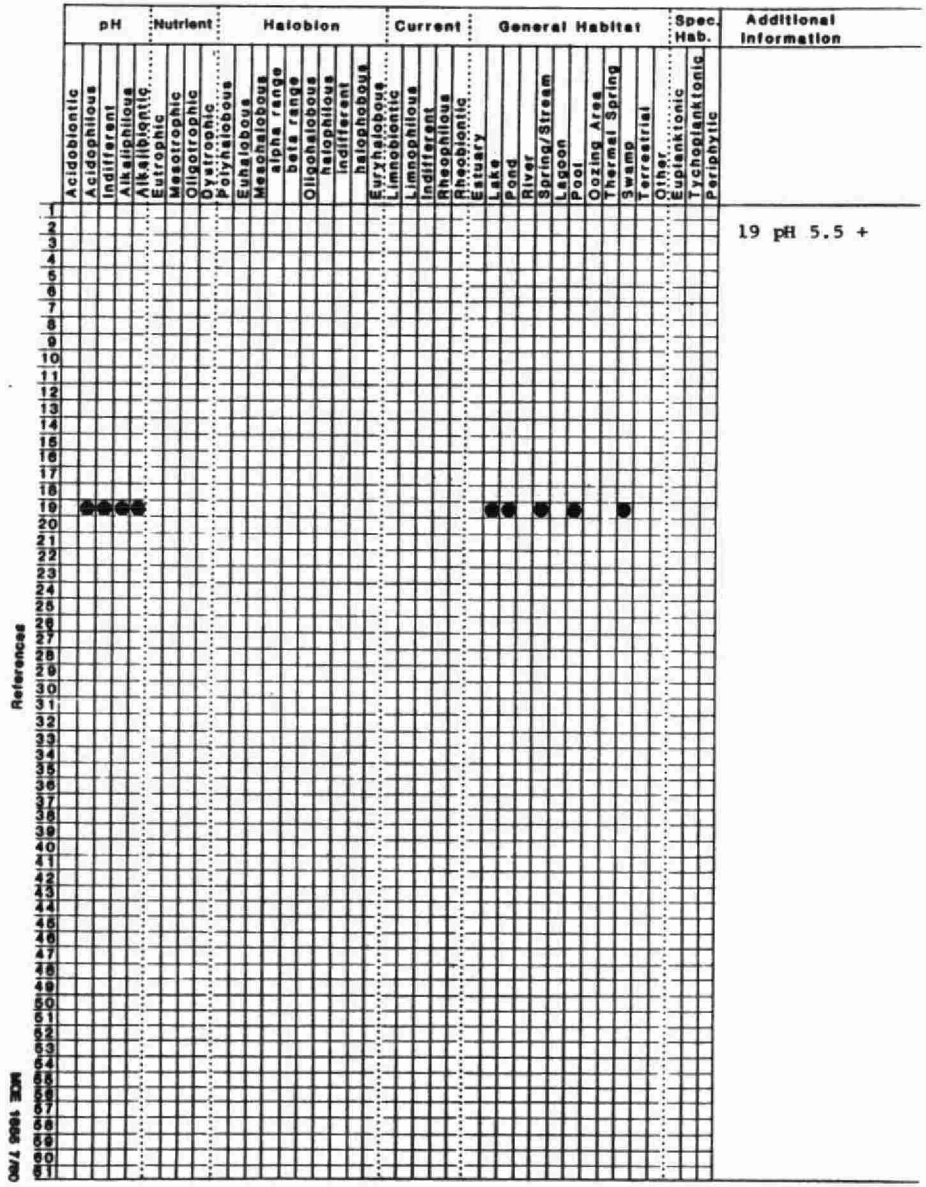


38 pH 4.05-4.6
6.32-7.15
61 spring maximum

Ministry of the Environment
Ontario

Taxon Cyclotella antiqua W. Sm.

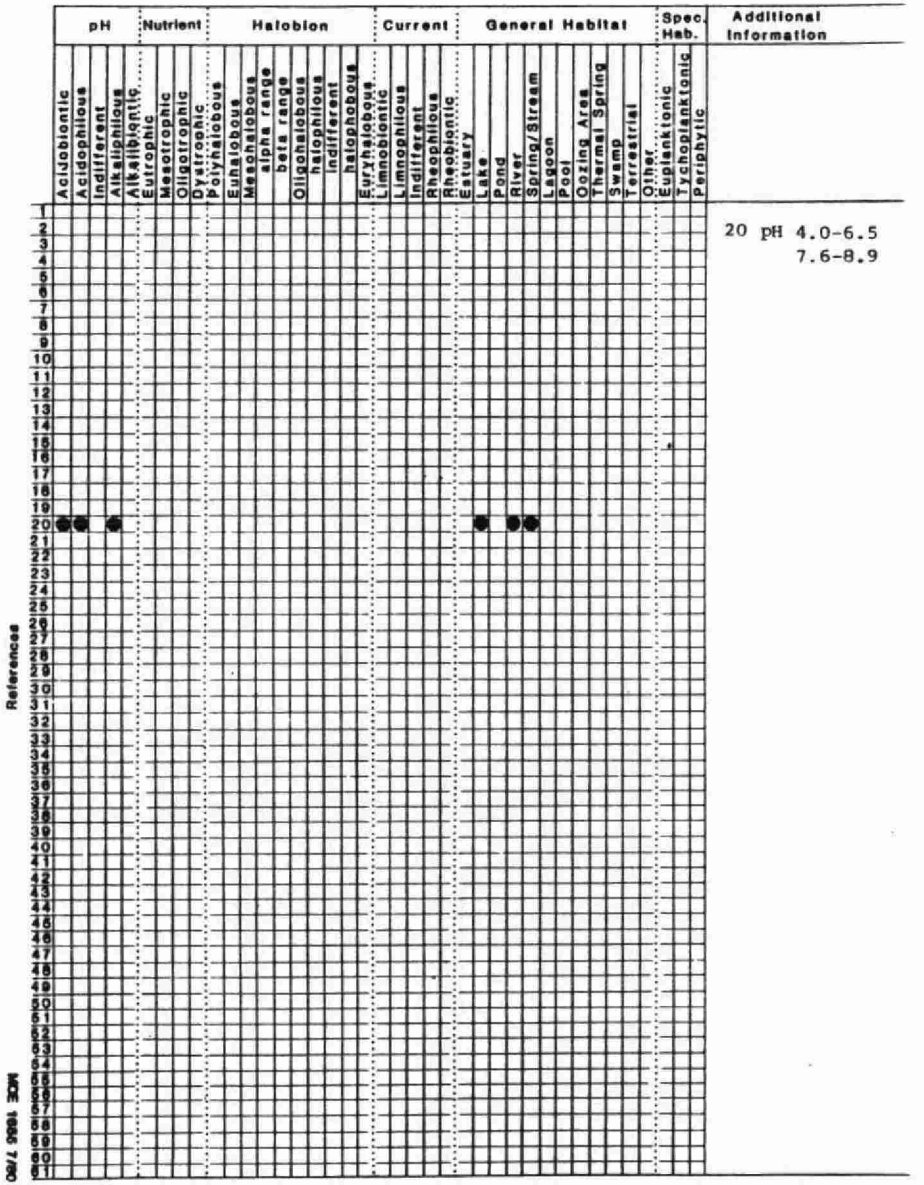
Synonym Cyclotella operculata var. antiqua Herib.



Ministry of the Environment
Ontario

Taxon Cyclotella arentii Kolbe

Synonym Coscinodiscus arentii (Kolbe) Cl.-Eul.



Ministry of the Environment
Ontario

Taxon Cyclotella atomus Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cyclotella bodanica Eulenst.

Synonym Cyclotella balatonis Pant./ Cyclotella balatonis var. binotat Pant.
Cyclotella comta var. bodanica Grun.

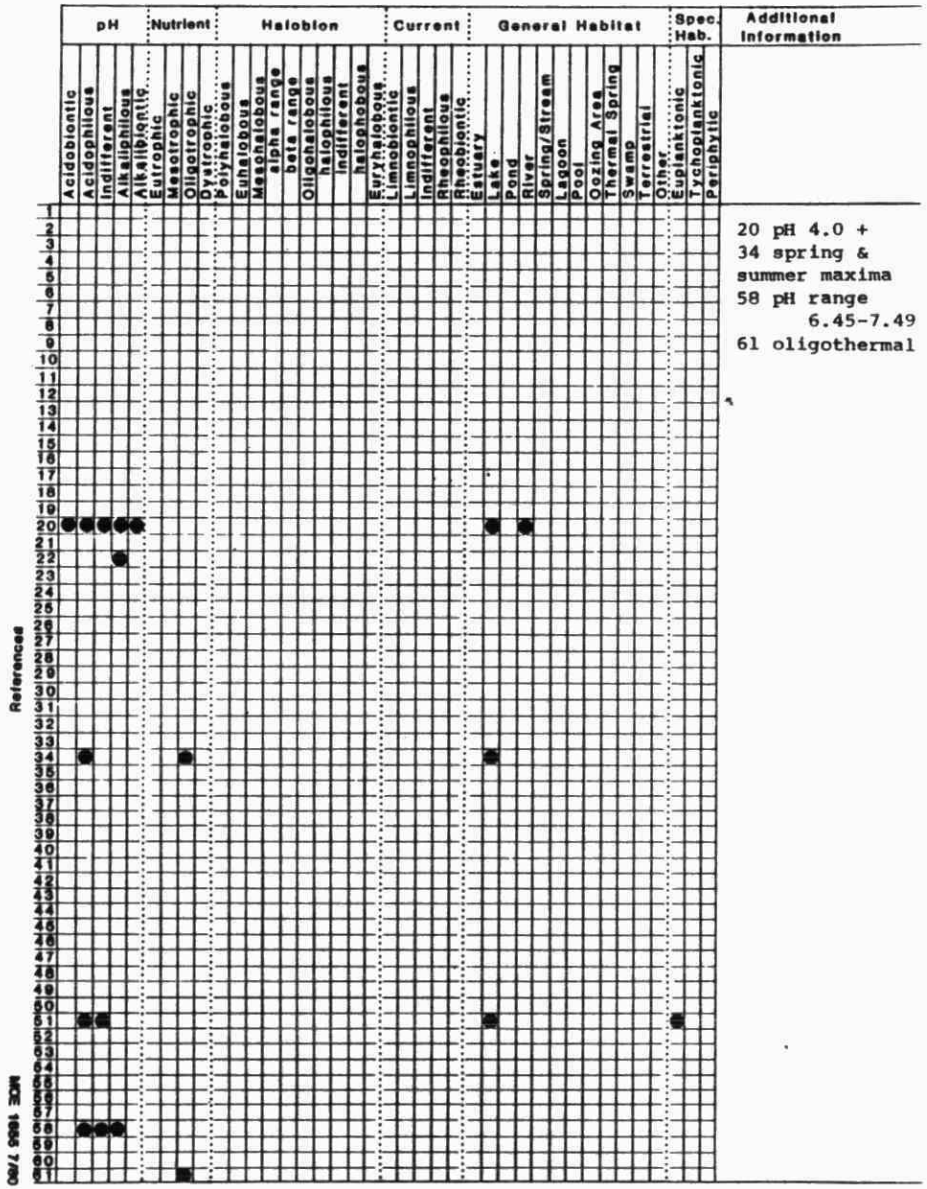
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
1																																								
2																																								8 pH optimum
3																																								under 7.0
4																																								31 pH 6.2-8.1
5																																								61 oligothermal
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Ministry of the Environment
Ontario

Taxon Cyclotella comensis Grun.

Synonym

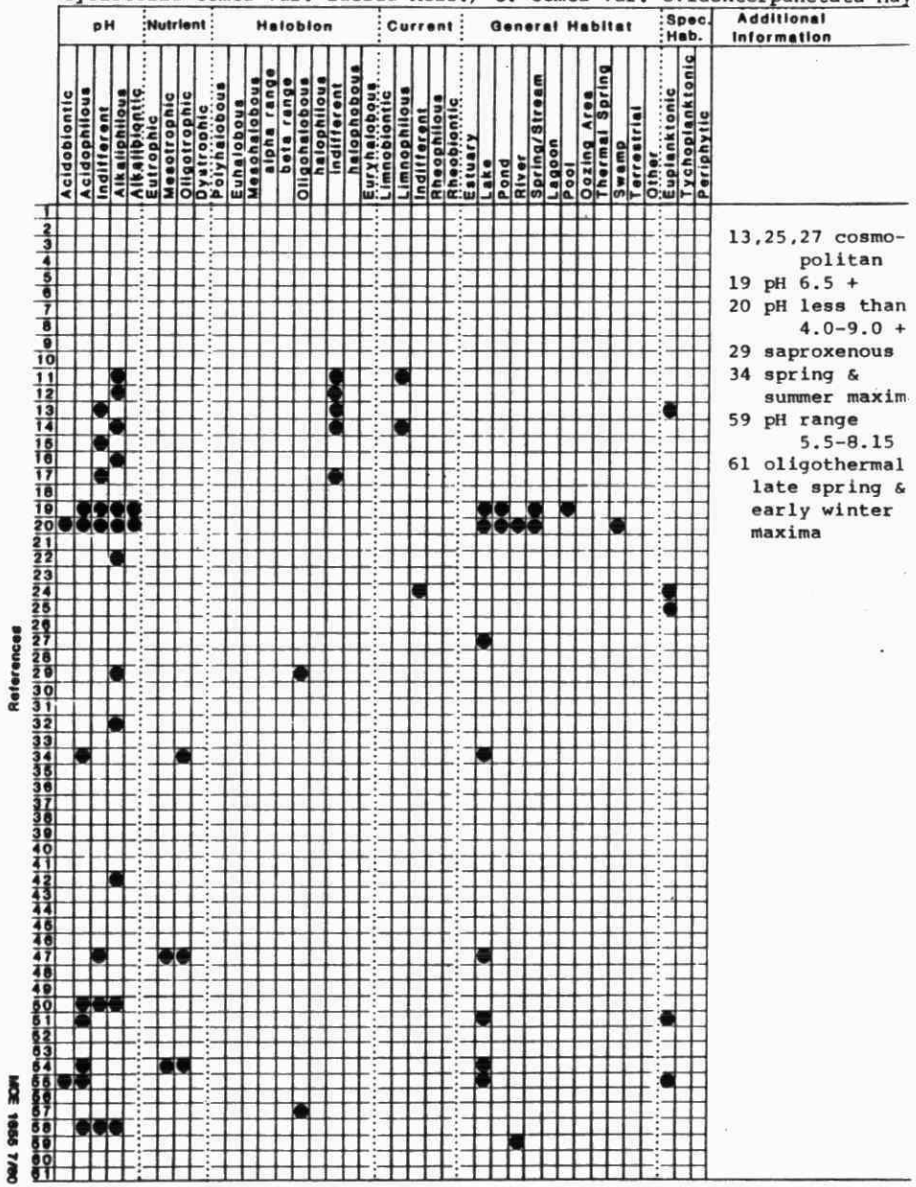


20 pH 4.0 +
34 spring & summer maxima
58 pH range 6.45-7.49
61 oligothermal

Ministry of the Environment
Ontario

Taxon Cyclotella comta (Ehr.) Kutz. var. comta

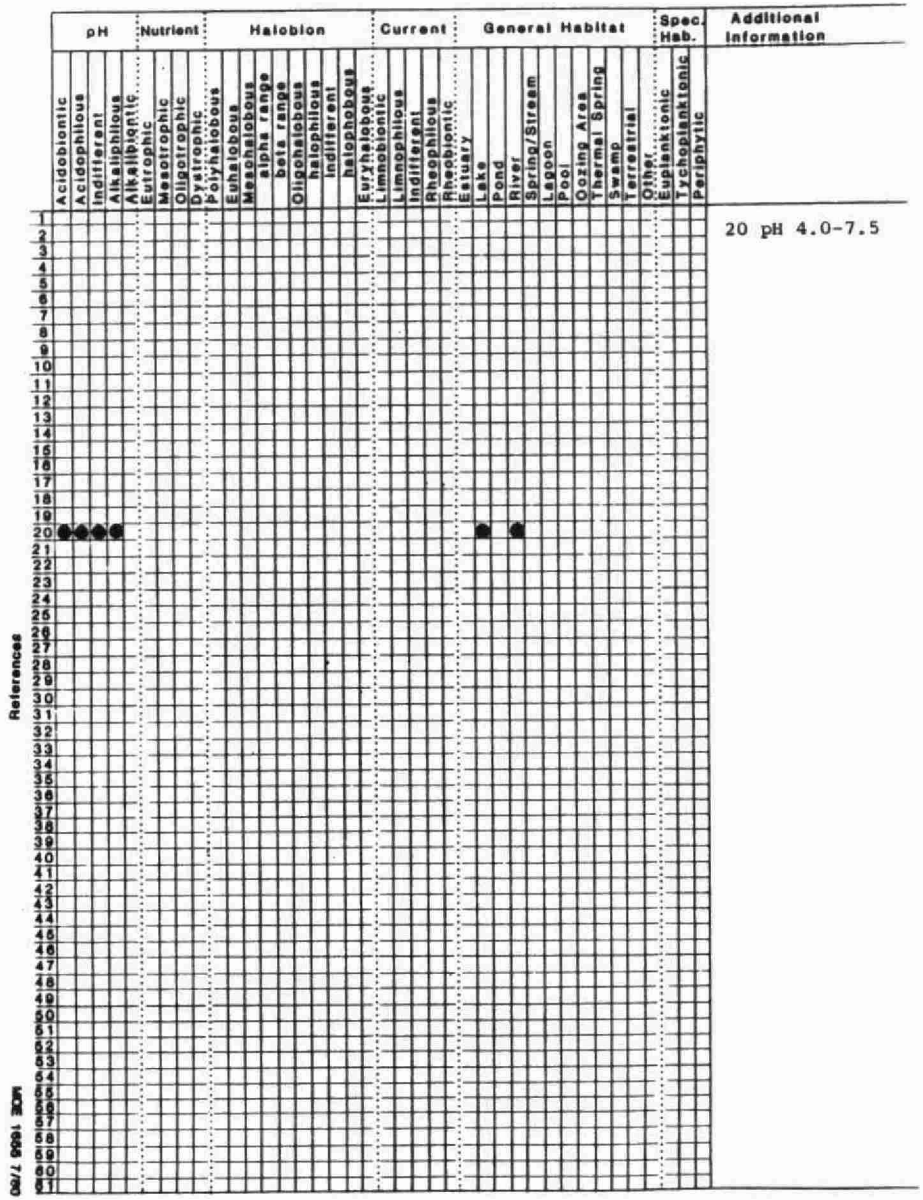
Synonym Cyclotella comta var. radiosa Grun./ C. comta var. affinis Gru
Cyclotella comta var. lucida Meis./ C. comta var. evidenterpunctata May



13,25,27 cosmopolitan
19 pH 6.5 +
20 pH less than 4.0-9.0 +
29 saproxenous
34 spring & summer maxim
59 pH range 5.5-8.15
61 oligothermal late spring & early winter maxima

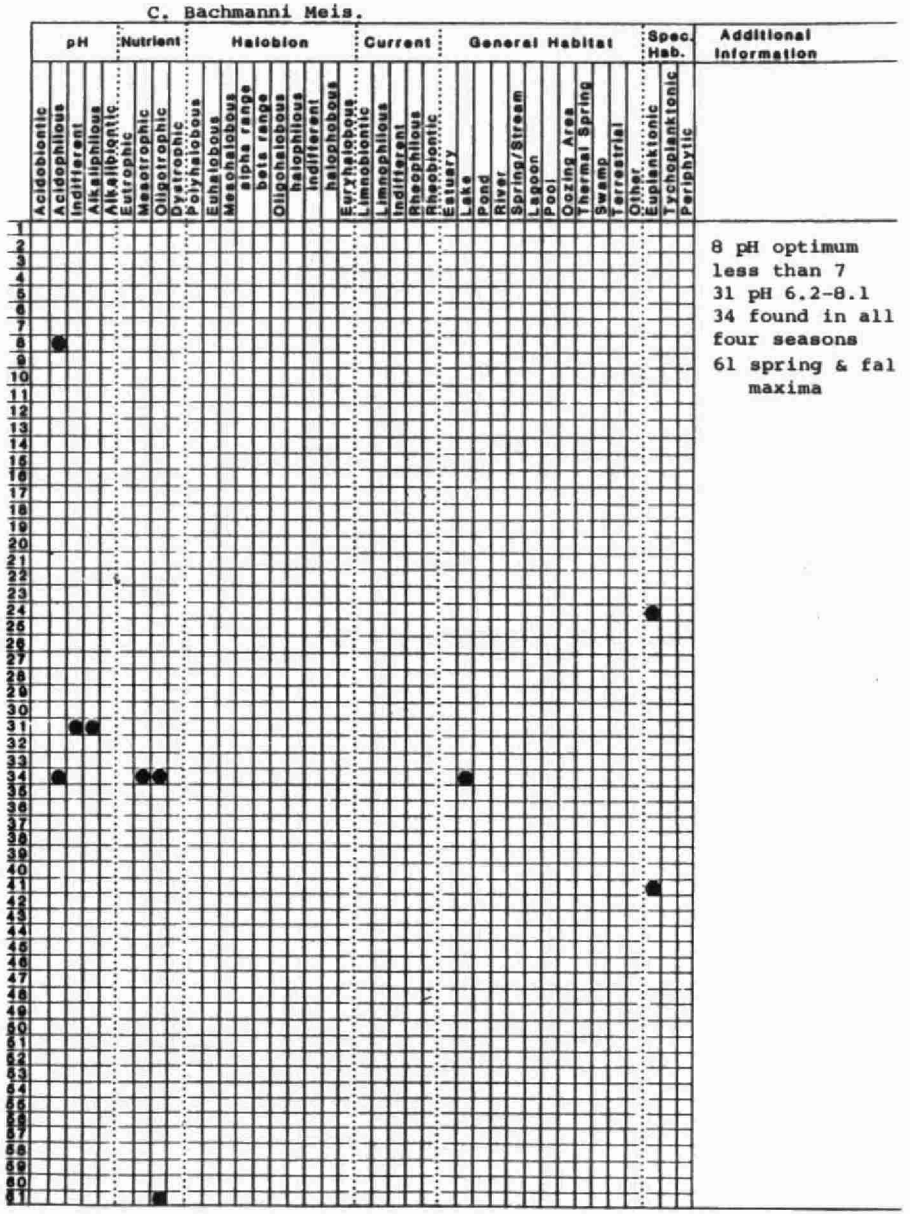
Taxon Cyclotella comta var. oligactis (Ehr.) Grun.

Synonym Cyclotella oligactis Ralfs.



Taxon Cyclotella glomerata Bach.

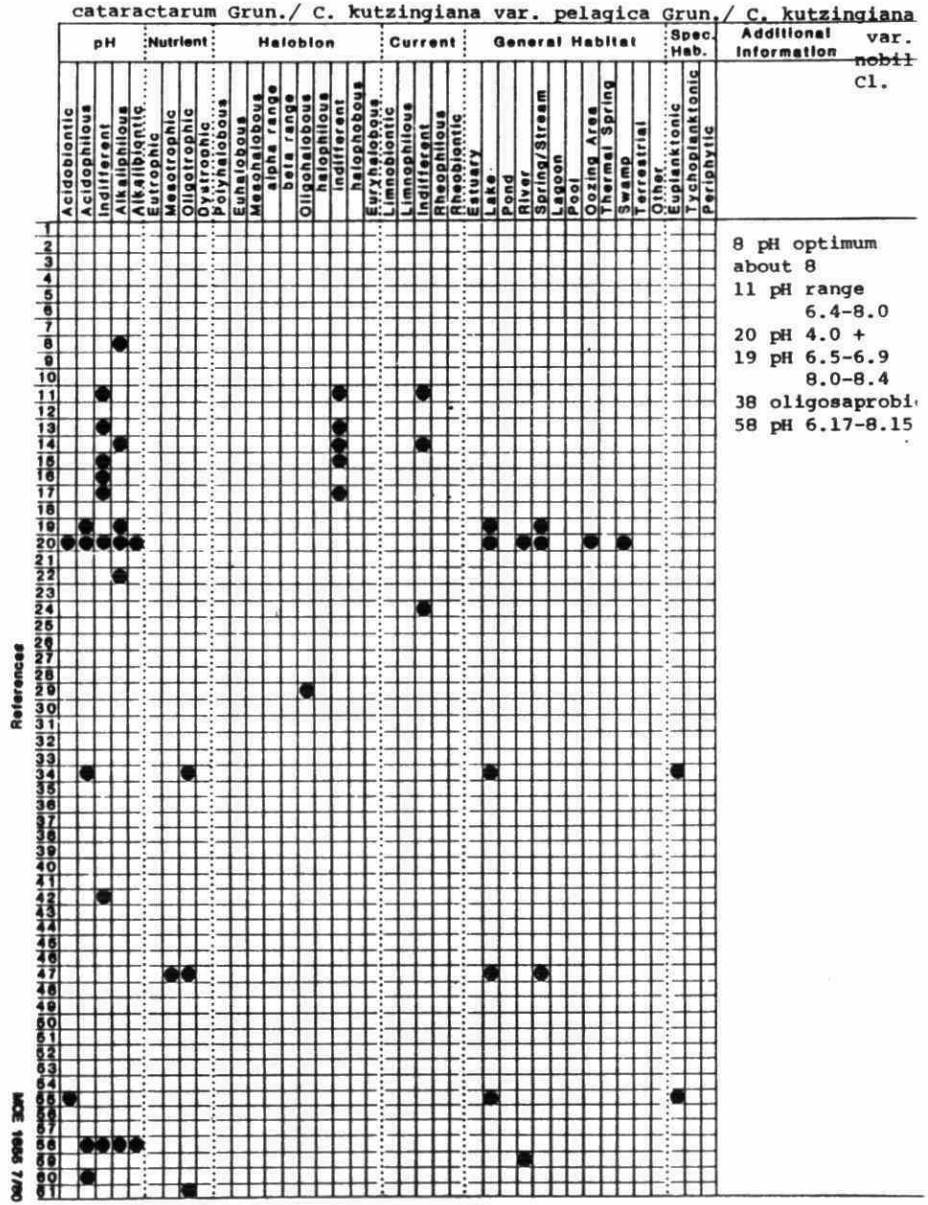
Synonym Cyclotella socialis var. minima Bach./ C. luzernensis Bach.
C. Bachmanni Meis.



Ministry of the Environment
Ontario

Taxon Cyclotella kutzingiana Thw. var. kutzingiana

Synonym Cyclotella operculata f. rectangula Kutz./ C. kutzingiana var. cataractarum Grun./ C. kutzingiana var. pelagica Grun./ C. kutzingiana var. ~~nobil~~ Cl.

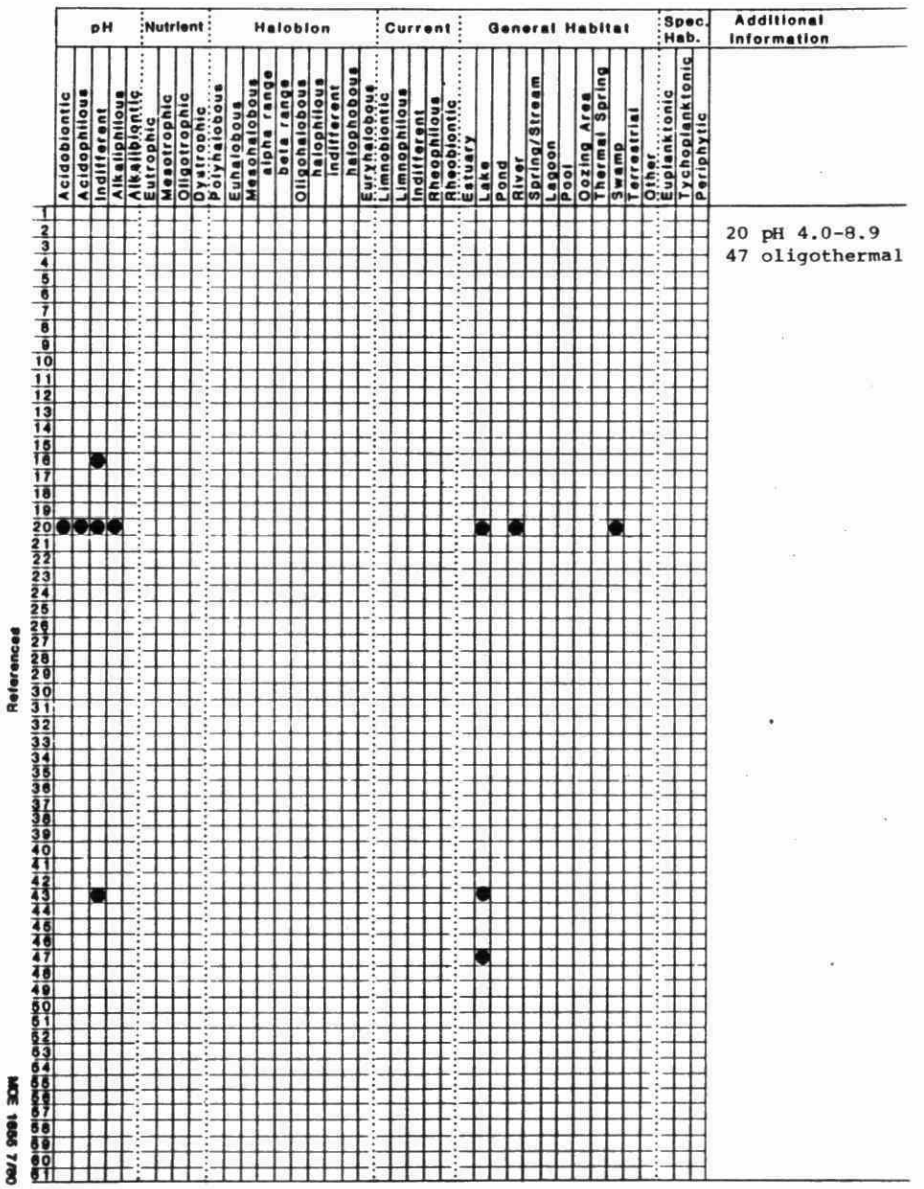


8 pH optimum about 8
11 pH range 6.4-8.0
20 pH 4.0 +
19 pH 6.5-6.9 8.0-8.4
38 oligosaprobi
58 pH 6.17-8.15

Ministry of the Environment
Ontario

Taxon Cyclotella kutzingiana var. planetophora Fricke

Synonym

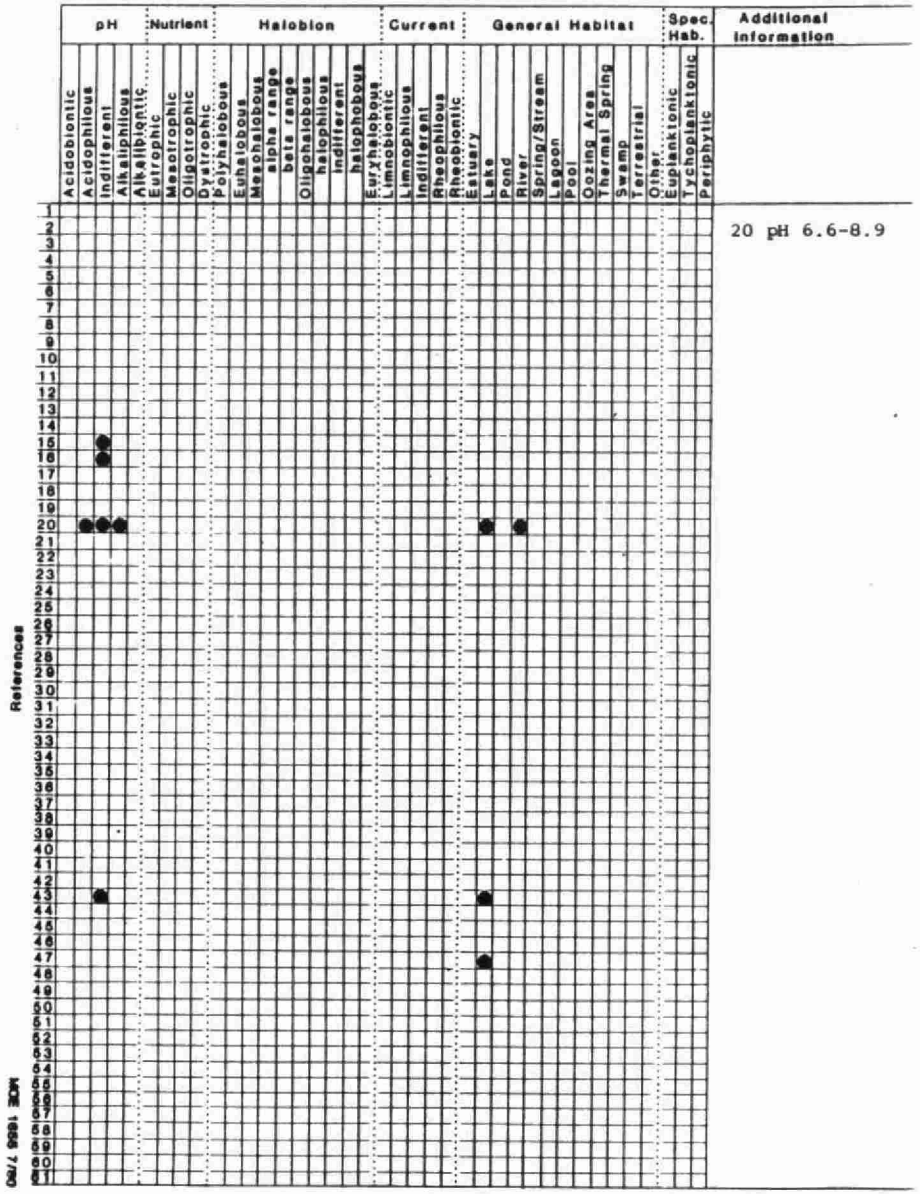


20 pH 4.0-8.9
47 oligothermal

Ministry of the Environment
Ontario

Taxon Cyclotella kutzingiana var. radiosa Fricke

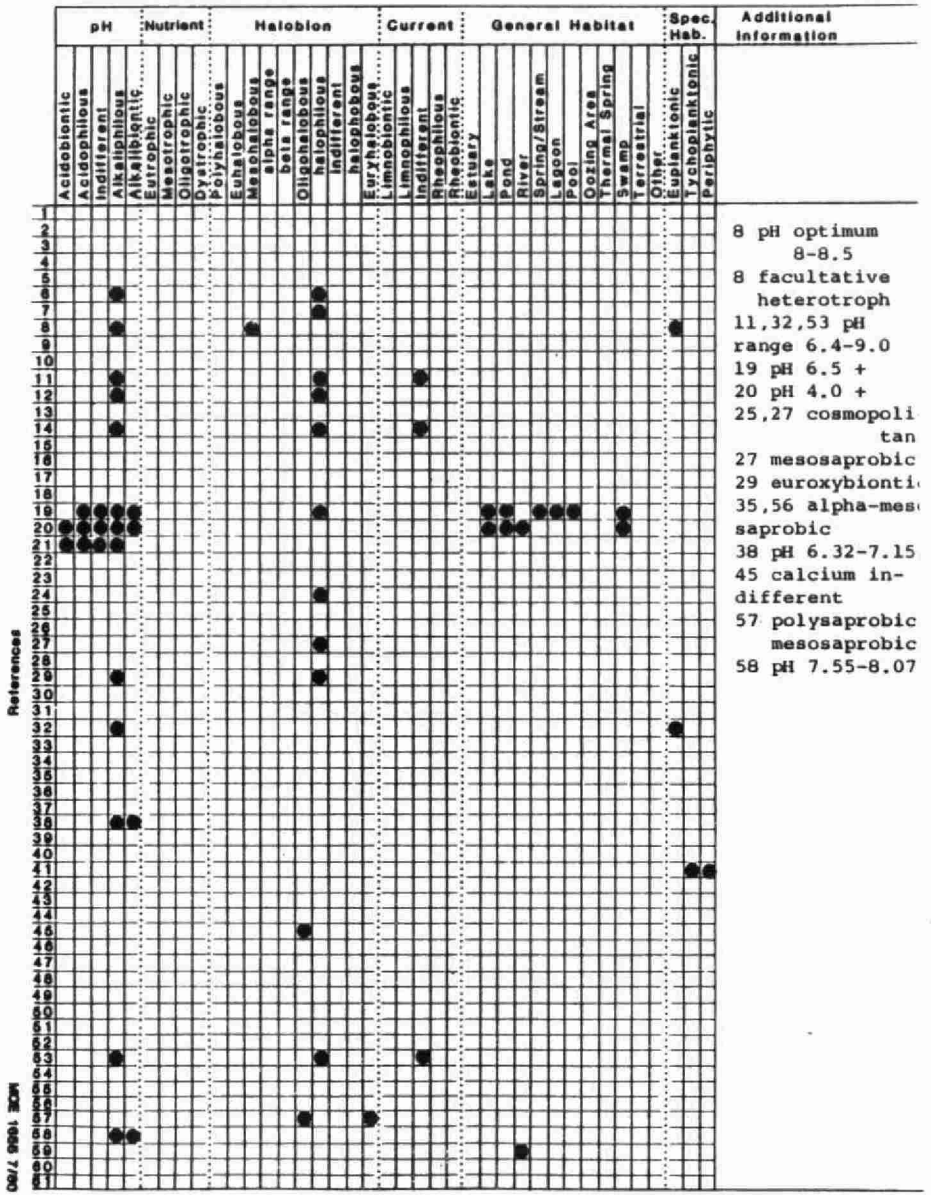
Synonym



Ministry of the Environment
Ontario

Taxon Cyclotella meneghiniana Kutz.

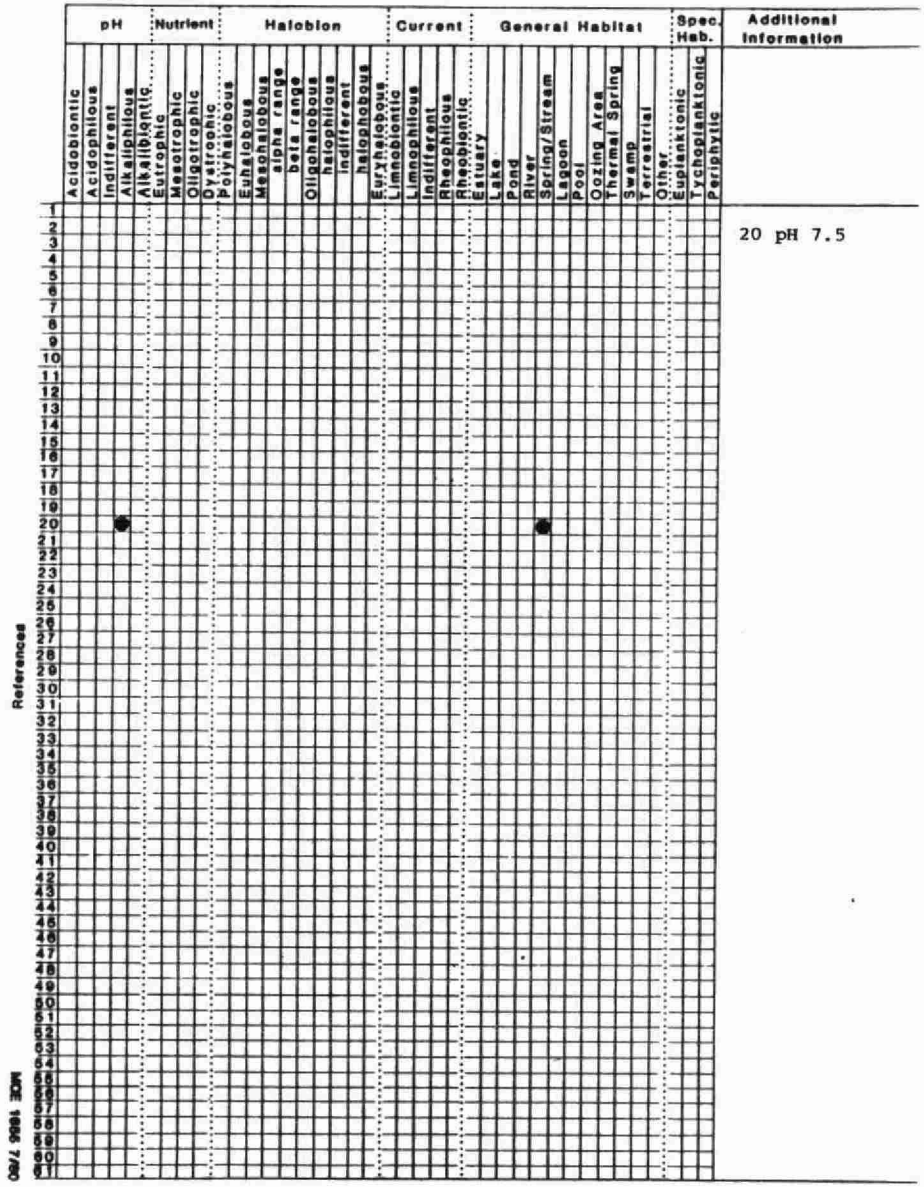
Synonym



Ministry of the Environment
Ontario

Taxon Cyclotella nana Hust.

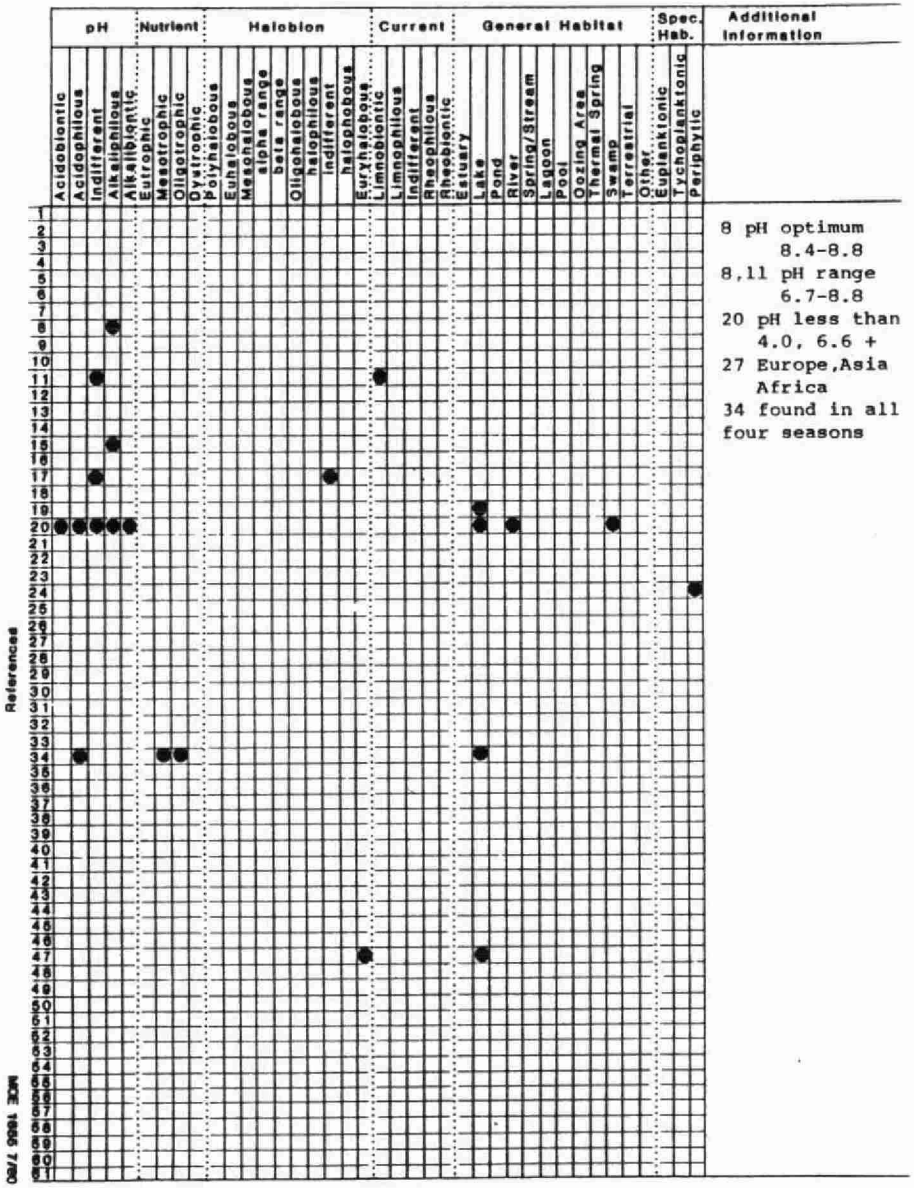
Synonym



Ministry of the Environment
Ontario

Taxon Cyclotella ocellata Pant.

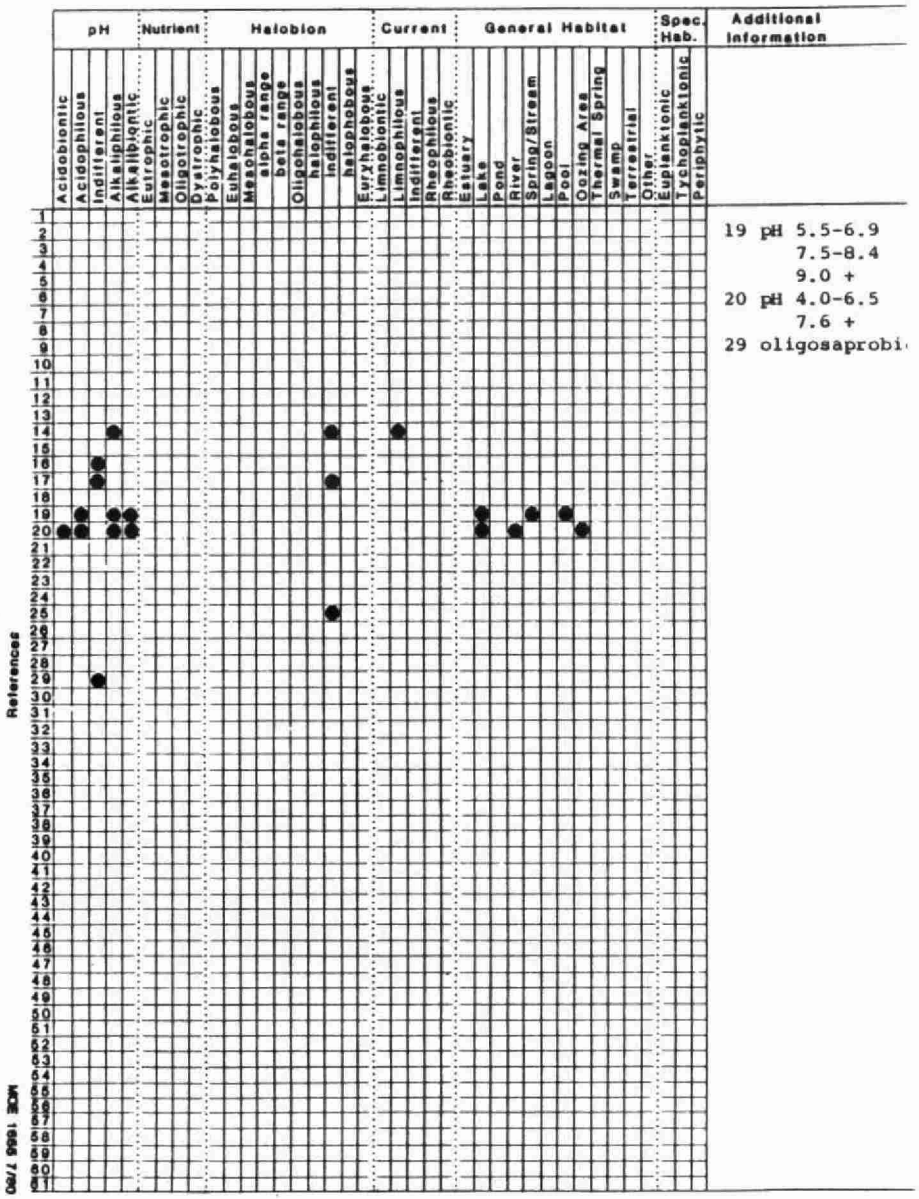
Synonym Cyclotella crucigera Pant./ Cyclotella tibetana Hust.



Ministry of the Environment
Ontario

Taxon Cyclotella pseudostelligera Hust.

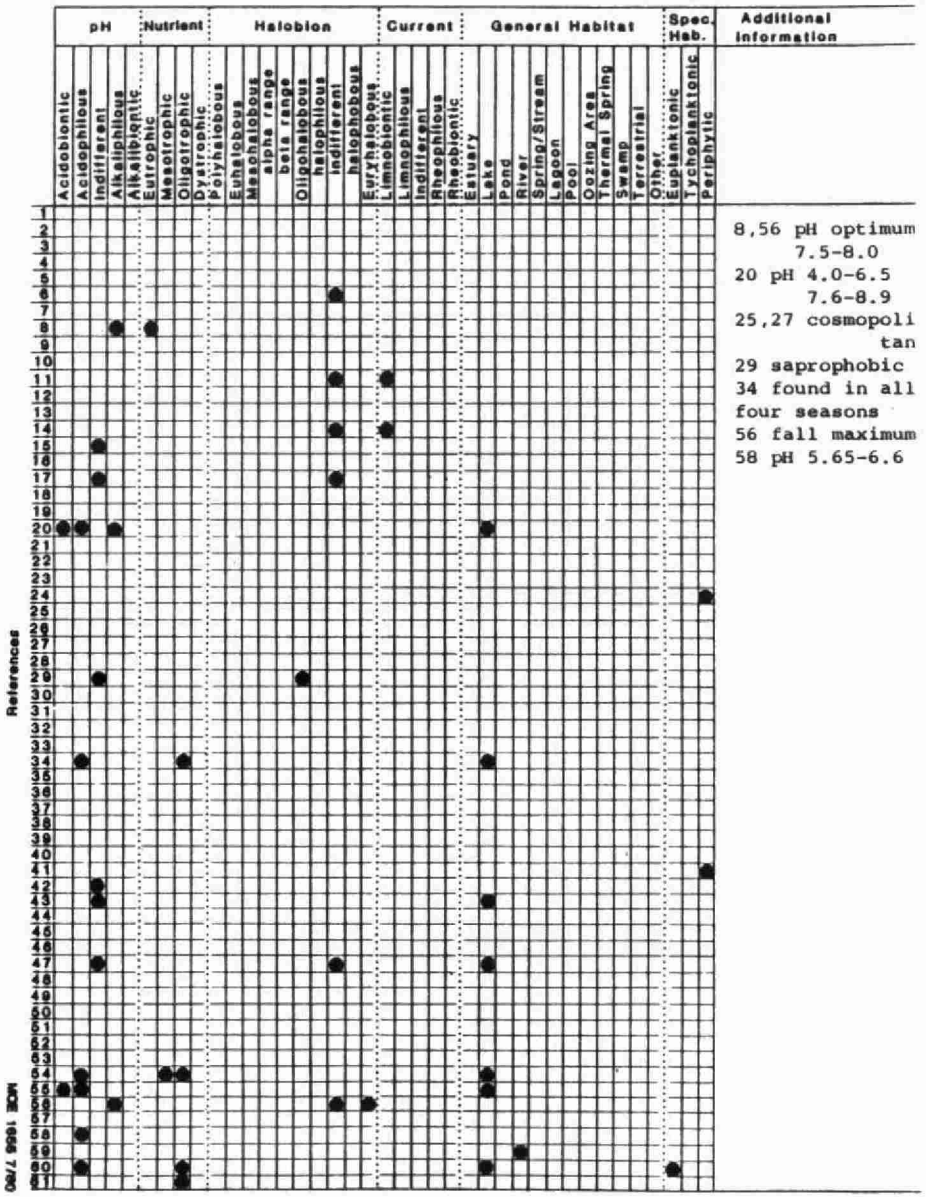
Synonym



Ministry of the Environment
Ontario

Taxon Cyclotella stelligera Cl.&Grun.

Synonym Cyclotella Meneghiniana var. ? stelligera Cl. & Grun.



Ministry of the Environment
Ontario

Taxon Cyclotella stelligeroides Hust.

Synonym

References	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cyclotella striata var. bipunctata Fricke

Synonym

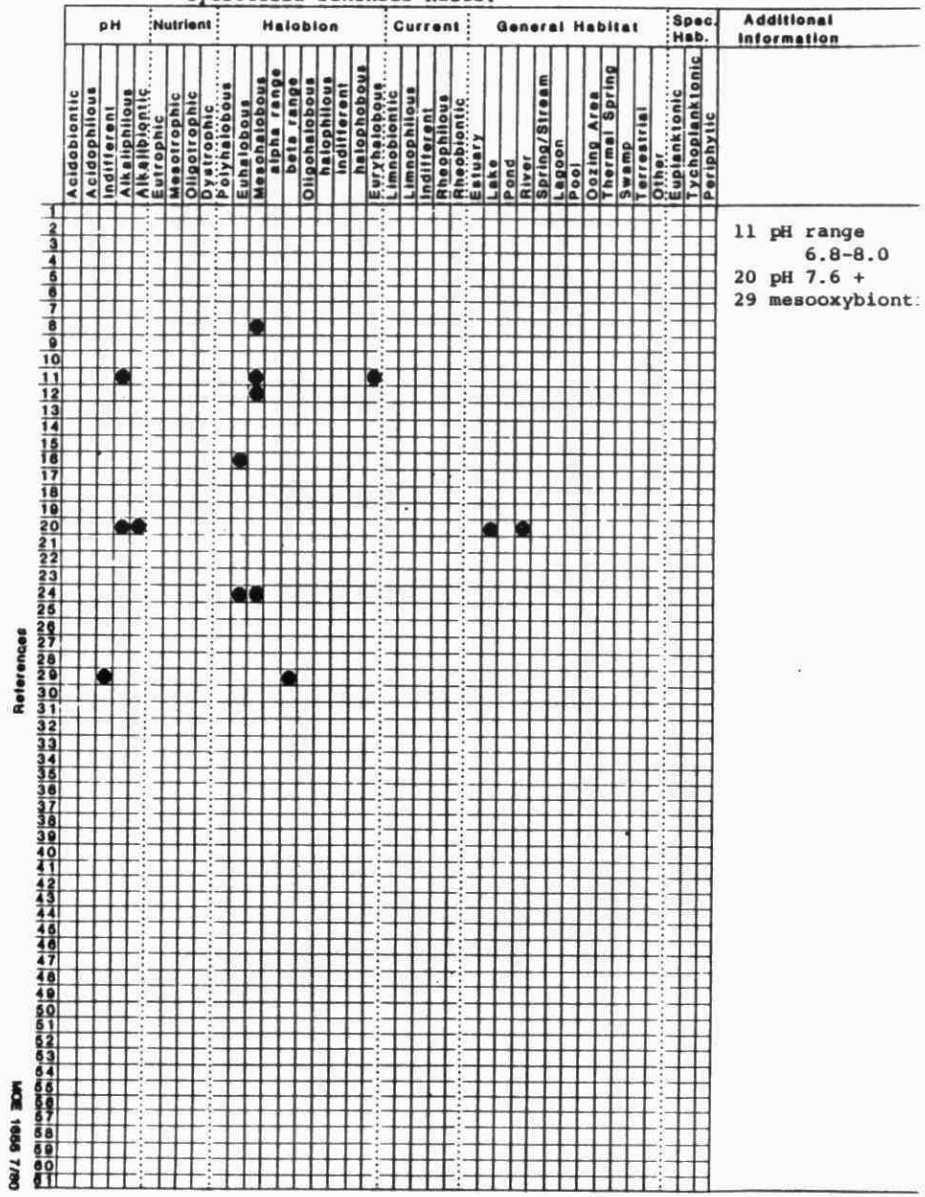
References	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cyclotella striata (Kutz.) Grun. var. striata

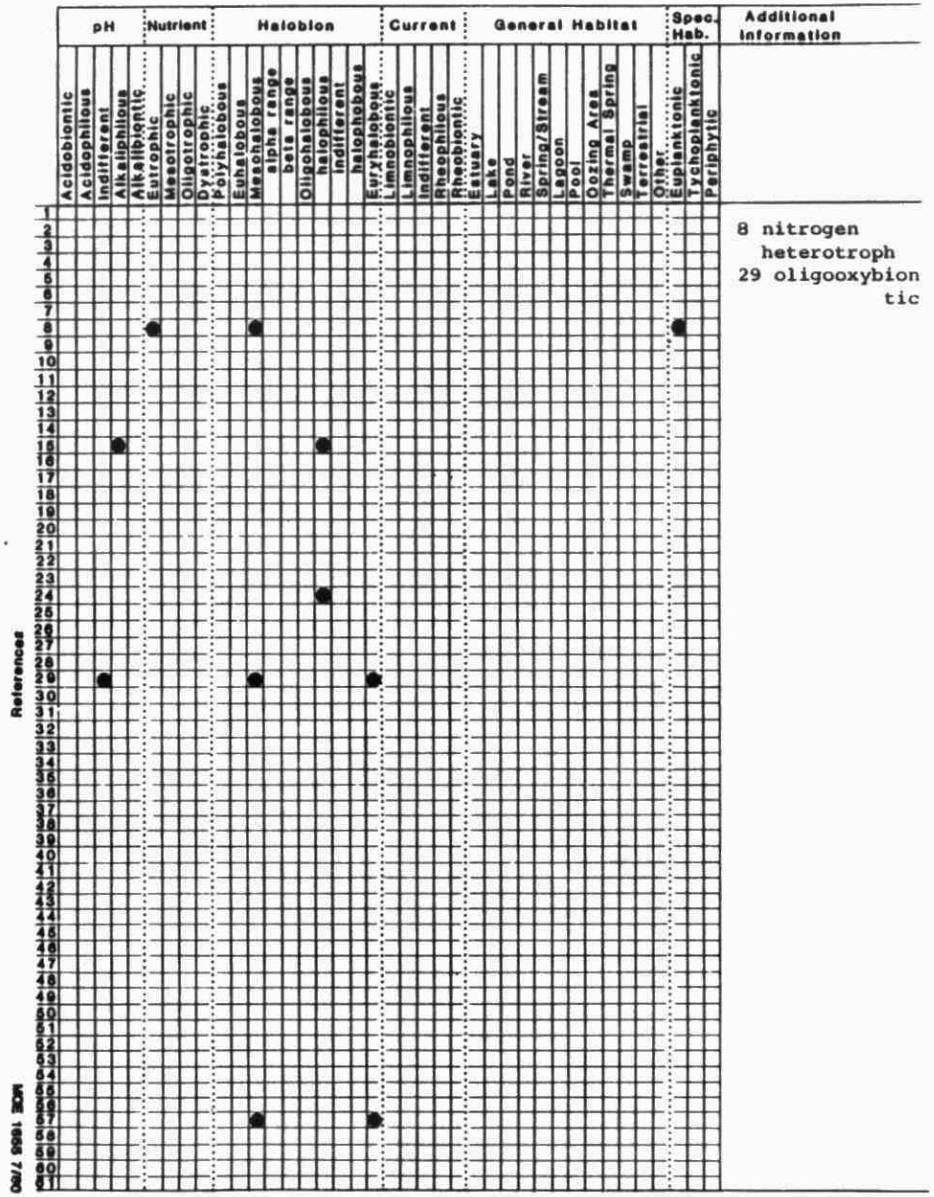
Synonym Coscinodiscus striatus Kutz./ Cyclotella Dallasiana W. Sm./ Cyclotella sinensis Ralfs.



Ministry of the Environment
Ontario

Taxon Cylindrotheca gracilis (Breb.) Grun.

Synonym



Ministry of the Environment
Ontario

Taxon Cymatopleura elliptica var. constricta Grun.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cymatopleura elliptica (Breb.) W.Sm. var. elliptica

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cymatopleura elliptica var. hibernica (W. Sm.) Hust.

Synonym

pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	

Ministry of the Environment
Ontario

Taxon Cymatopleura solea var. apiculata (W. Sm.) Ralfs

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythalassous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Cymatopleura solea var. graciloides Cl.

Synonym

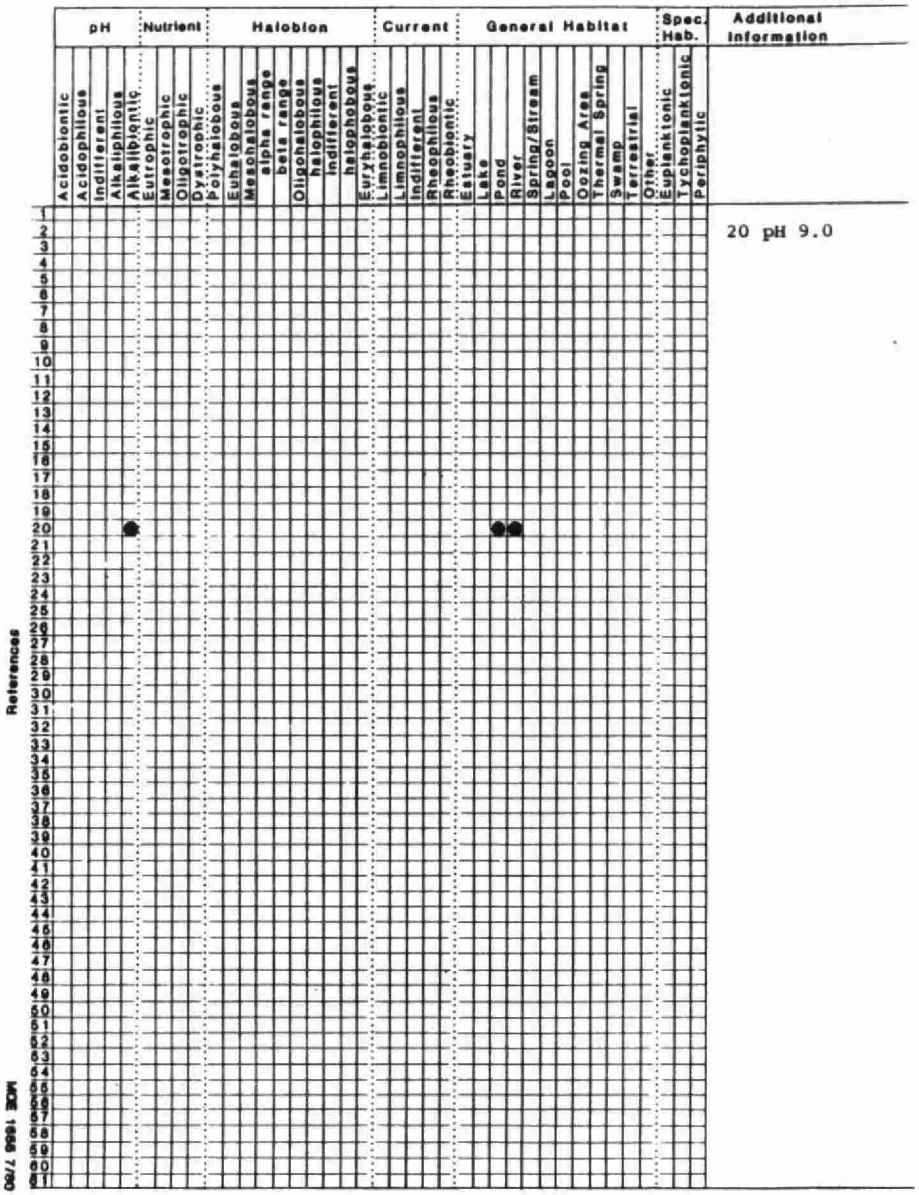
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Ministry of the Environment
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Taxon Cymatopleura solea var. regula (Ehr.) Grun.

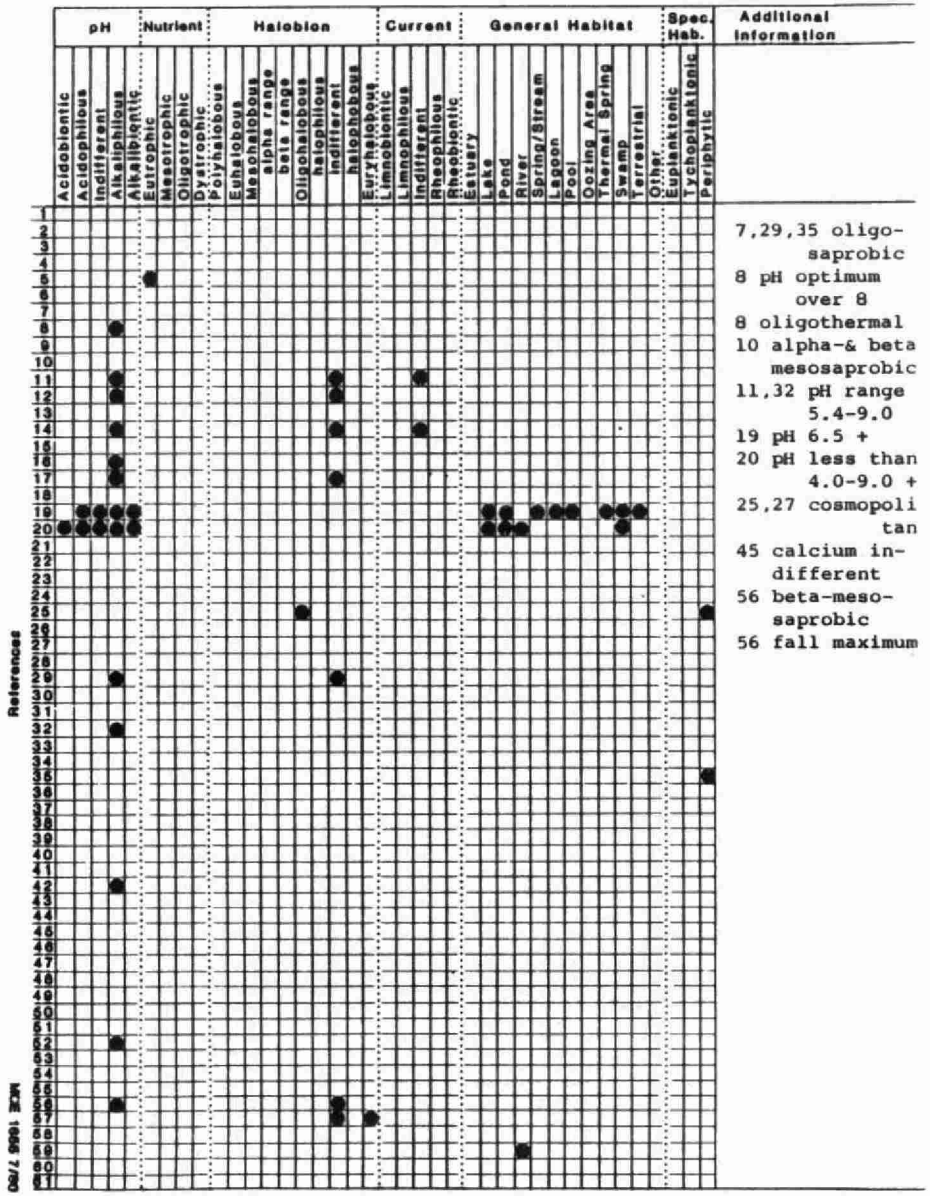
Synonym



Ministry of the Environment
Ontario

Taxon Cymatopleura solea (Breb.)W. Sm. var. solea

Synonym



Ministry of the Environment
Ontario

Taxon Cymbella sp.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Cymbella aequalis W.Sm.

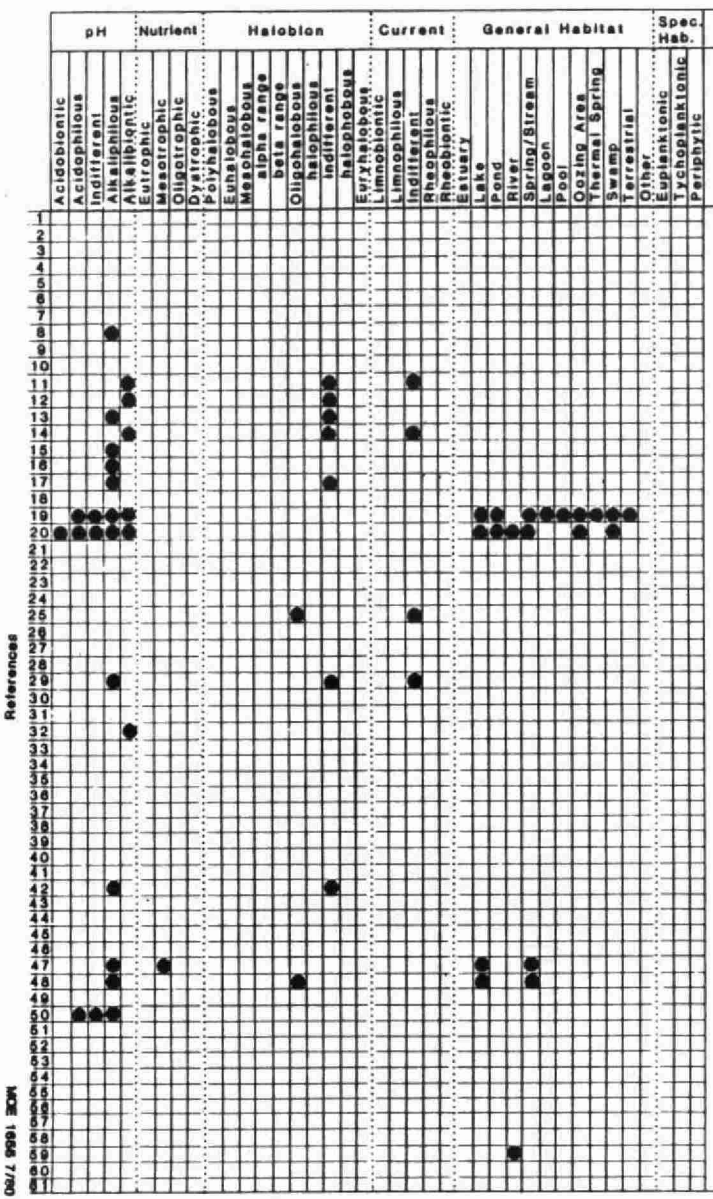
Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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Additional Information

Taxon Cymbella affinis Kutz.

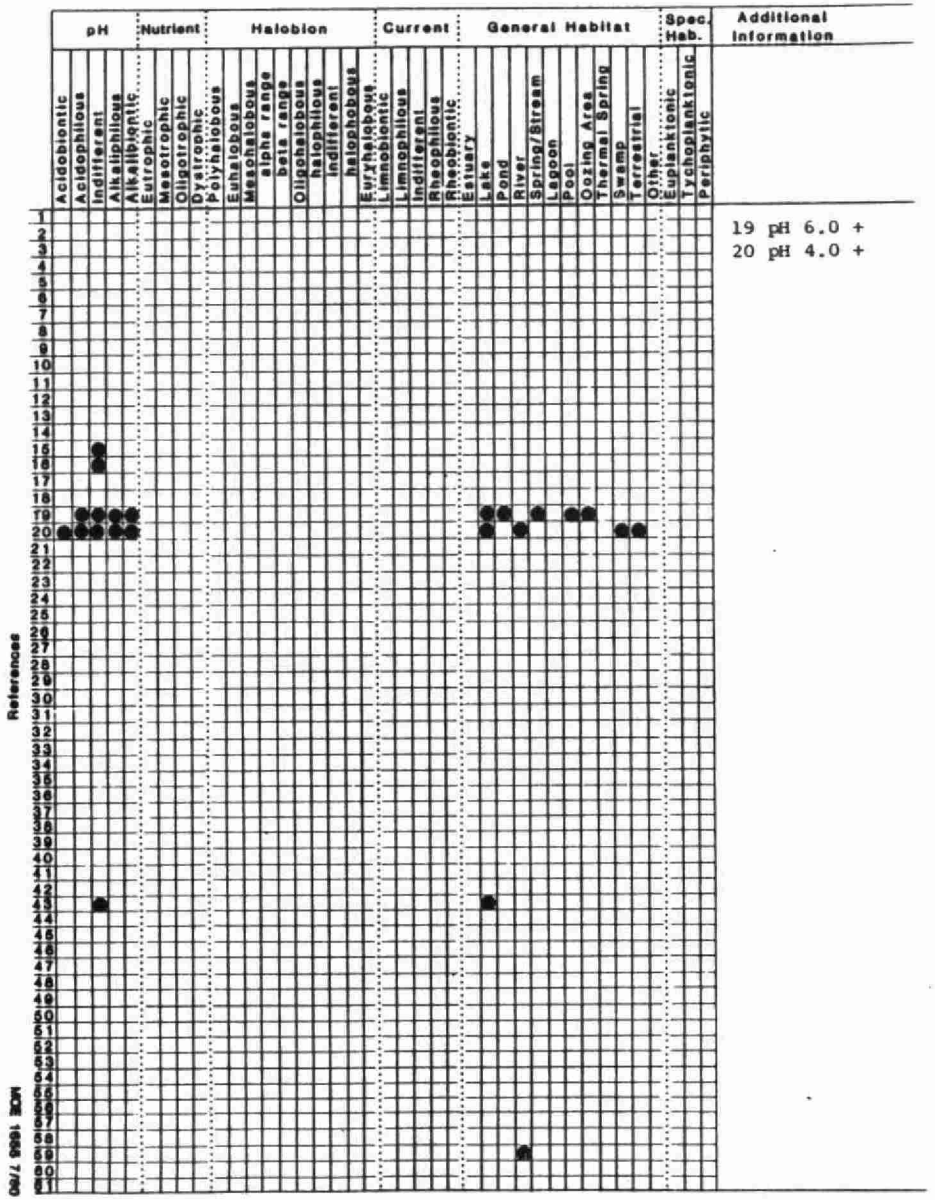
Synonym Cymbella parva (W. Sm.) Kirchn.



4 summer maximu
4,29 saprophobi
8,29 pH optimum 7.8-8.5
11,29,32 pH range 4.3-9.0
19 pH 5.5 +
20 pH less than 4.0-9.0 +
24 best development in warmer lands
25,27 cosmopolitan
29 oligosaprobi

Taxon Cymbella amphicephala Naeg.ex Kutz. var. amphicephala

Synonym



19 pH 6.0 +
20 pH 4.0 +

Ministry of the Environment
Ontario

Taxon Cymbella amphicephala var. hercynica

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
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Taxon Cymbella amphioxys (Kutz.) Grun.

Synonym

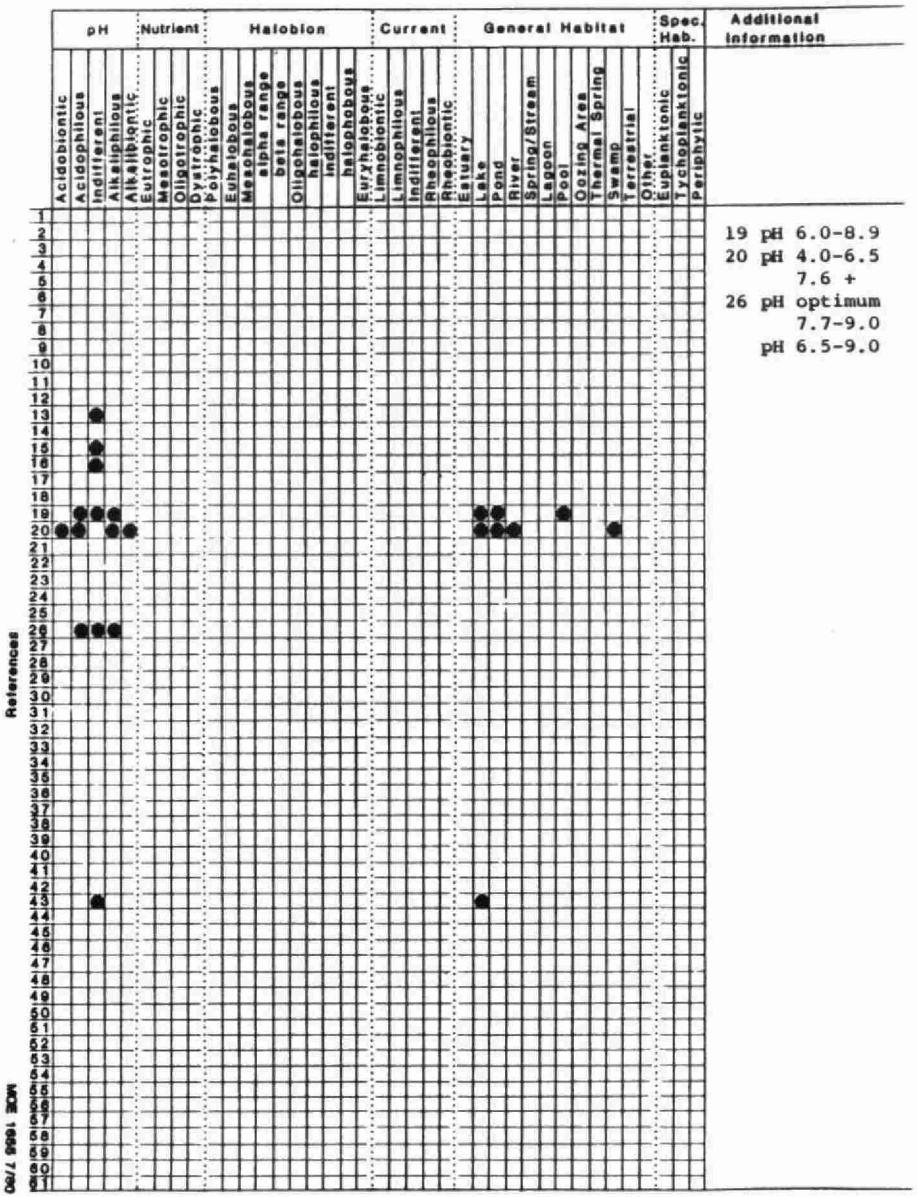
References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Cymbella angustata (W.Sm.) Cl. var. angustata

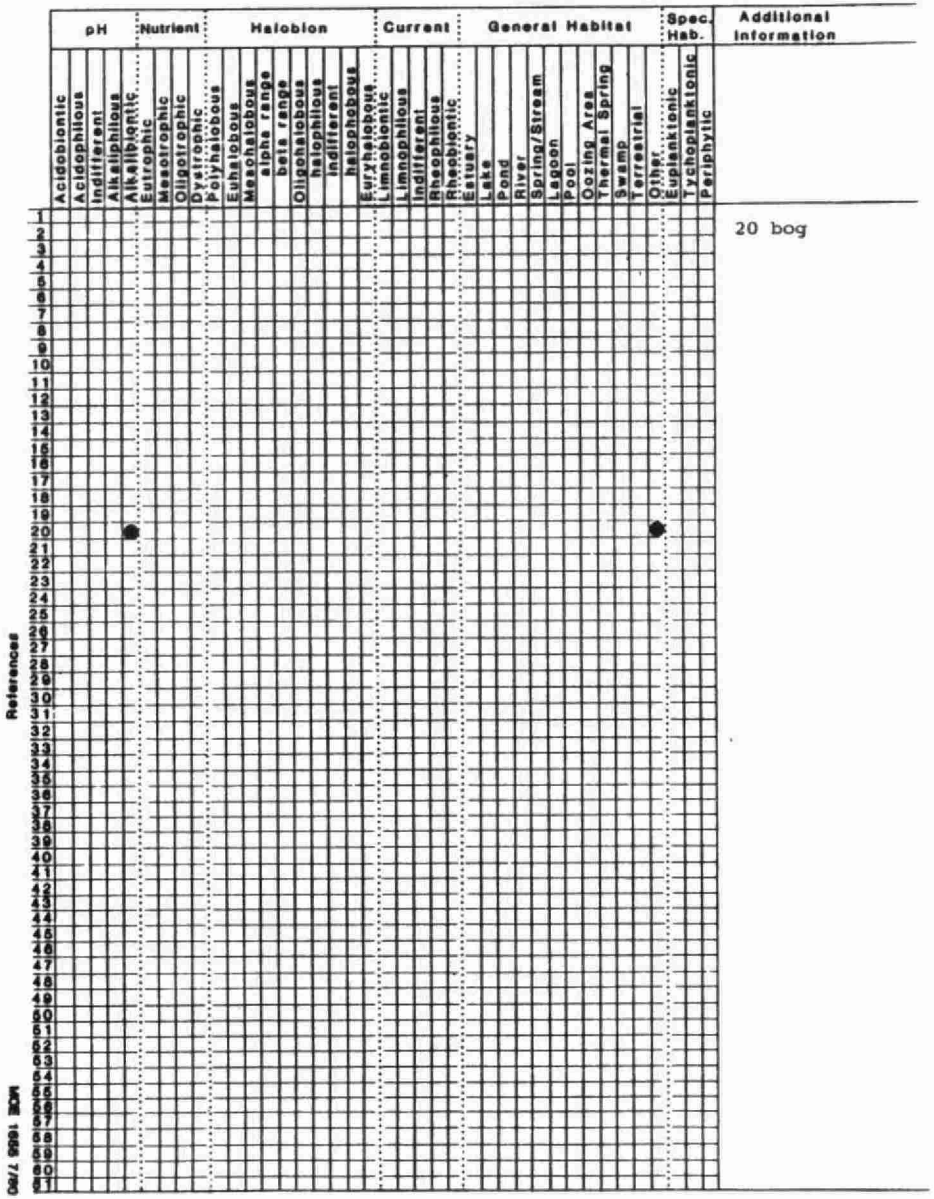
Synonym Cymbella cesatii var. linearis Reim.



Ministry of the Environment
Ontario

Taxon Cymbella angustata var. linearis (Font.) Ross

Synonym Cymbella incerta var. linearis Font. 20

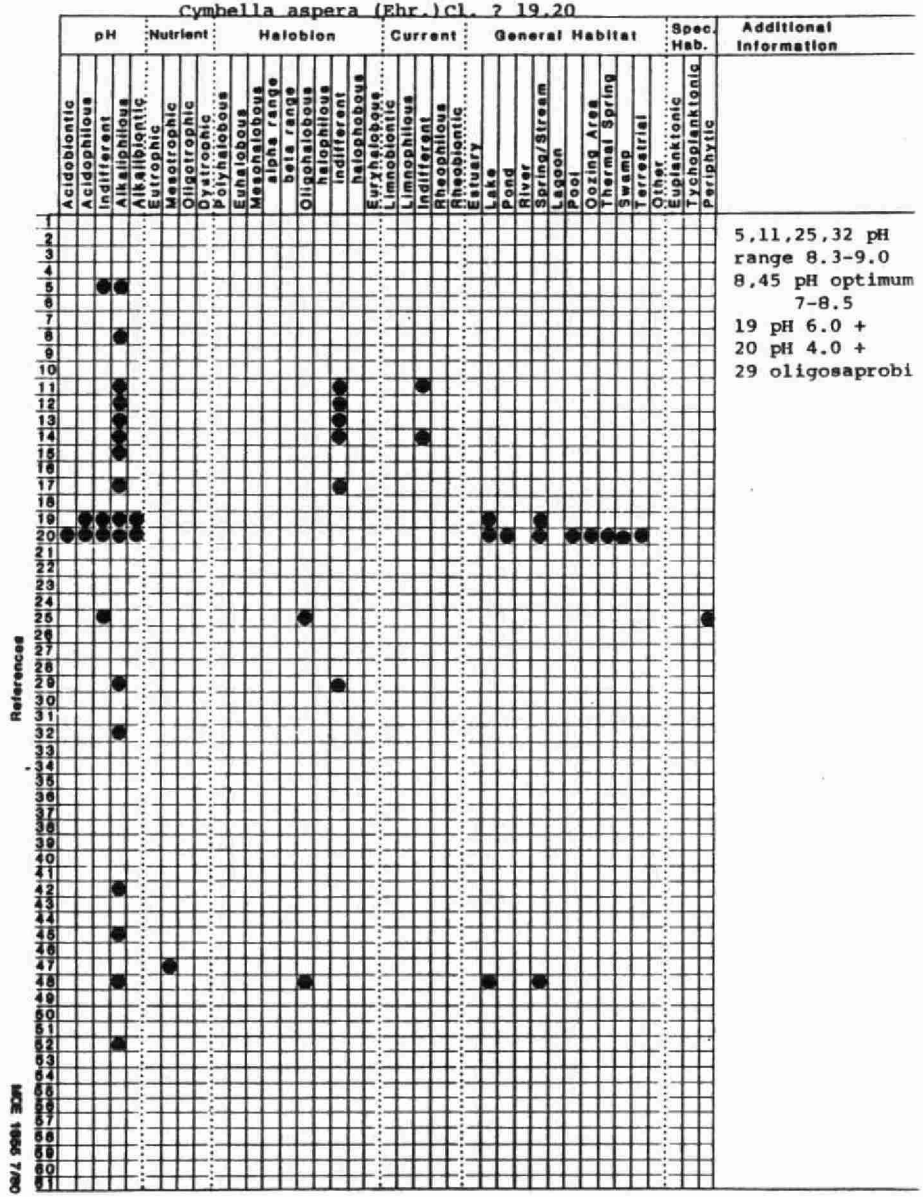


Ministry of the Environment
Ontario

Taxon Cymbella aspera (Ehr.)H. Perag.

Synonym Cymbella lanceolata var. aspera (Ehr.) Brun.

Cymbella aspera (Ehr.)Cl. ? 19,20

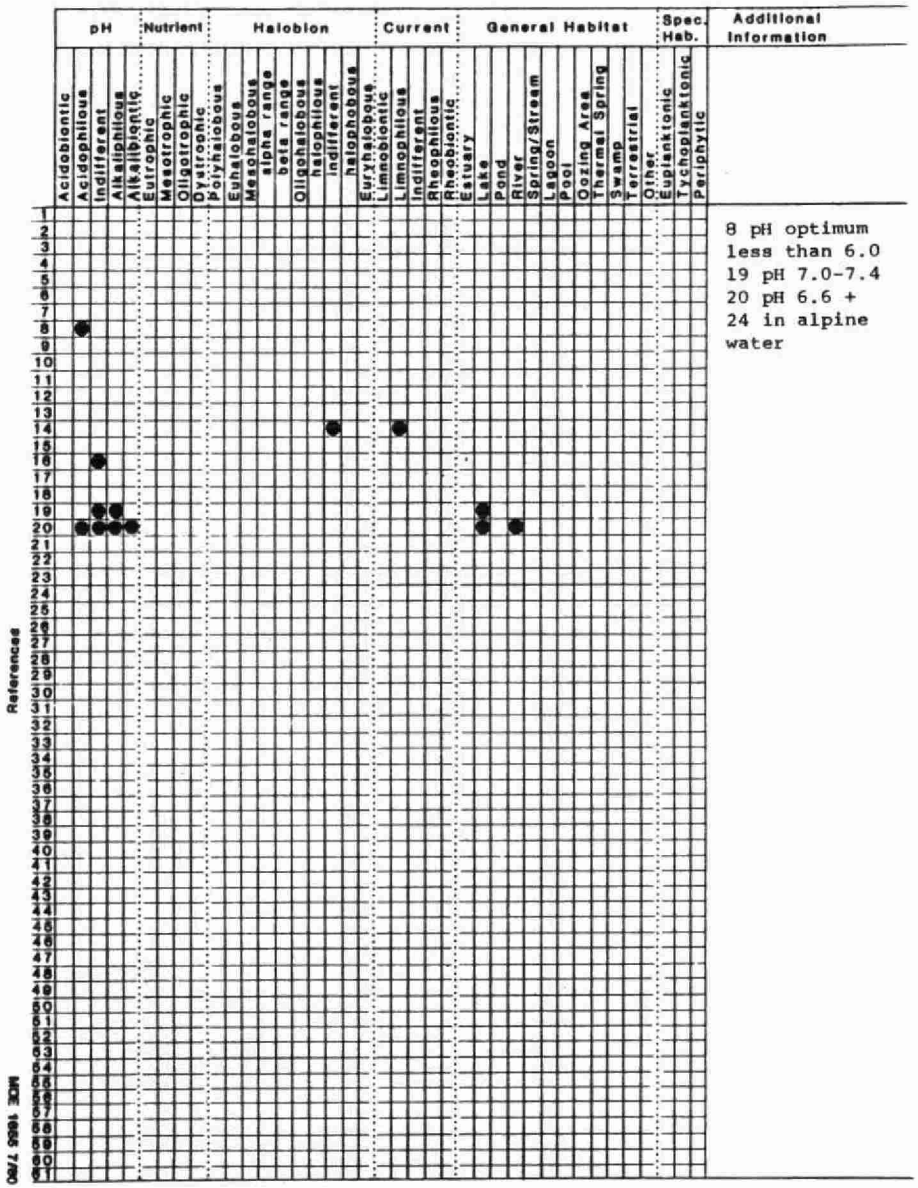


5,11,25,32 pH range 8.3-9.0
8,45 pH optimum 7-8.5
19 pH 6.0 +
20 pH 4.0 +
29 oligosaprobi

Ministry of the Environment
Ontario

Taxon Cymbella austriaca Grun.

Synonym



8 pH optimum less than 6.0
19 pH 7.0-7.4
20 pH 6.6 +
24 in alpine water

Ministry of the Environment
Ontario

Taxon Cymbella behrei Foged

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
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Ministry of the Environment
Ontario

Taxon Cymbella cesatii (Rabh.) Grun. ex A.S.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
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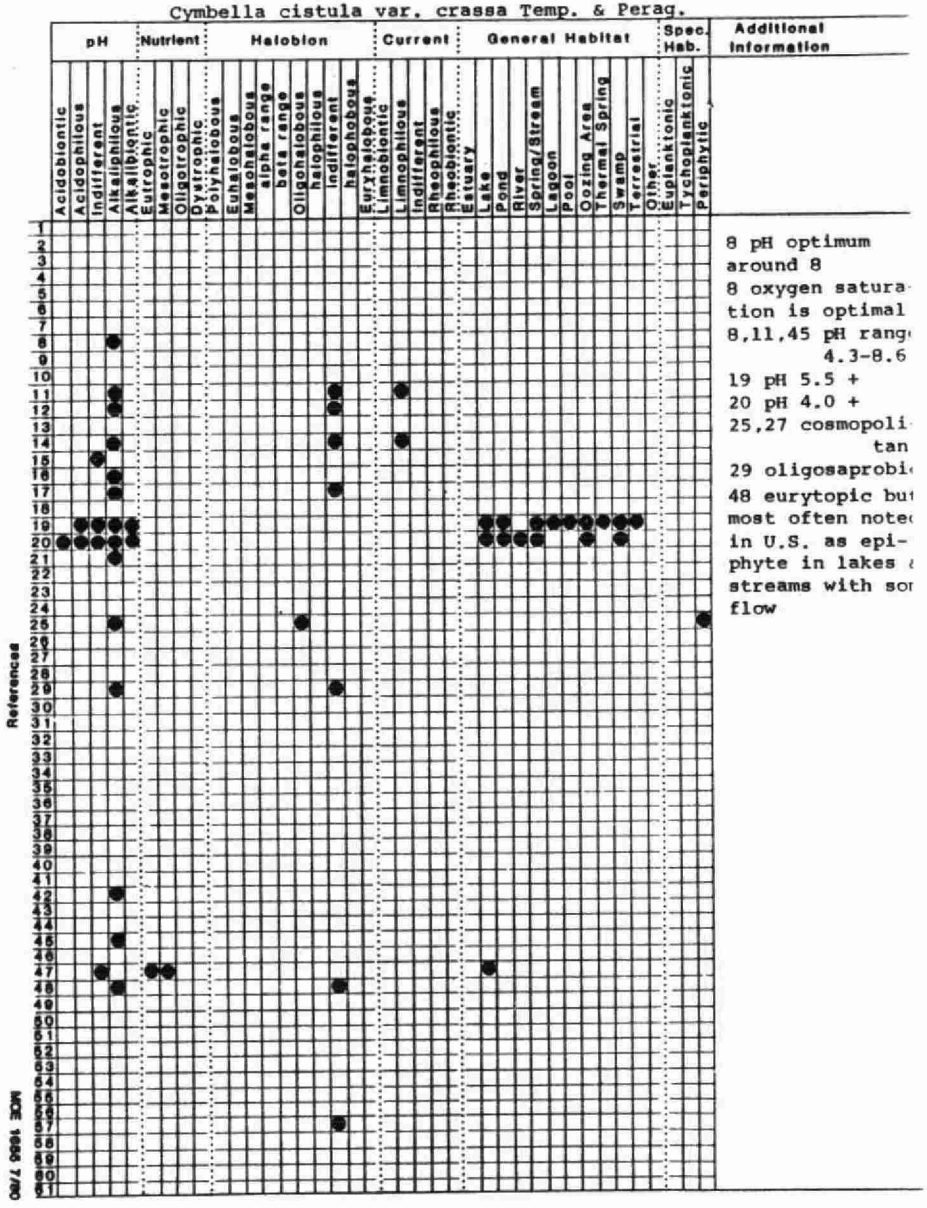
MOE 1666 7/80

Ministry of the Environment
Ontario

Taxon Cymbella cistula (Ehr.) Kirchn.

Synonym Cymbella cistula var. maculata (Kutz.) V.H.

Cymbella cistula var. crassa Temp. & Perag.

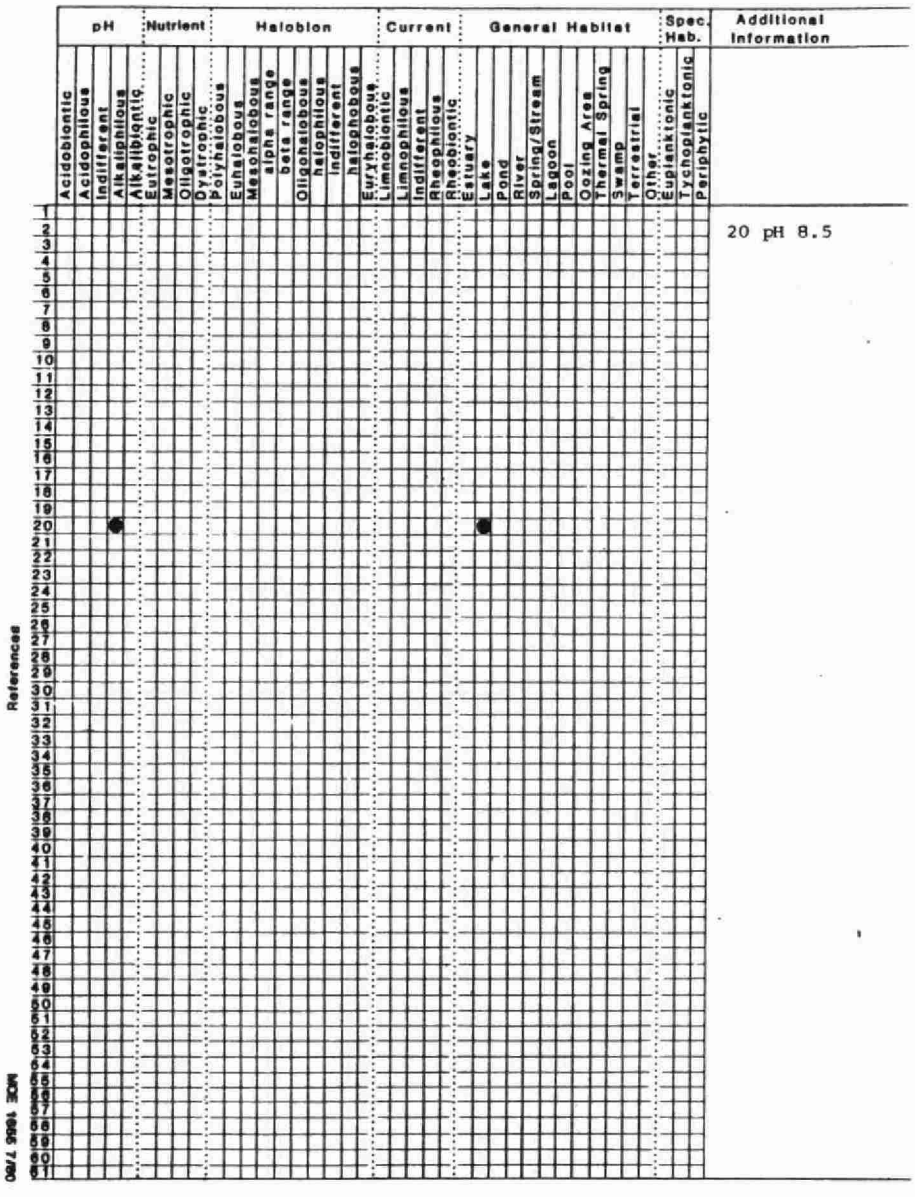


8 pH optimum around 8
8 oxygen saturation is optimal
8,11,45 pH range 4.3-8.6
19 pH 5.5 +
20 pH 4.0 +
25,27 cosmopolitan
29 oligosaprobi
48 eurytopic but most often note in U.S. as epiphyte in lakes streams with sor flow

Ministry of the Environment
Ontario

Taxon Cymbella cuspidata f. borealis Foged

Synonym

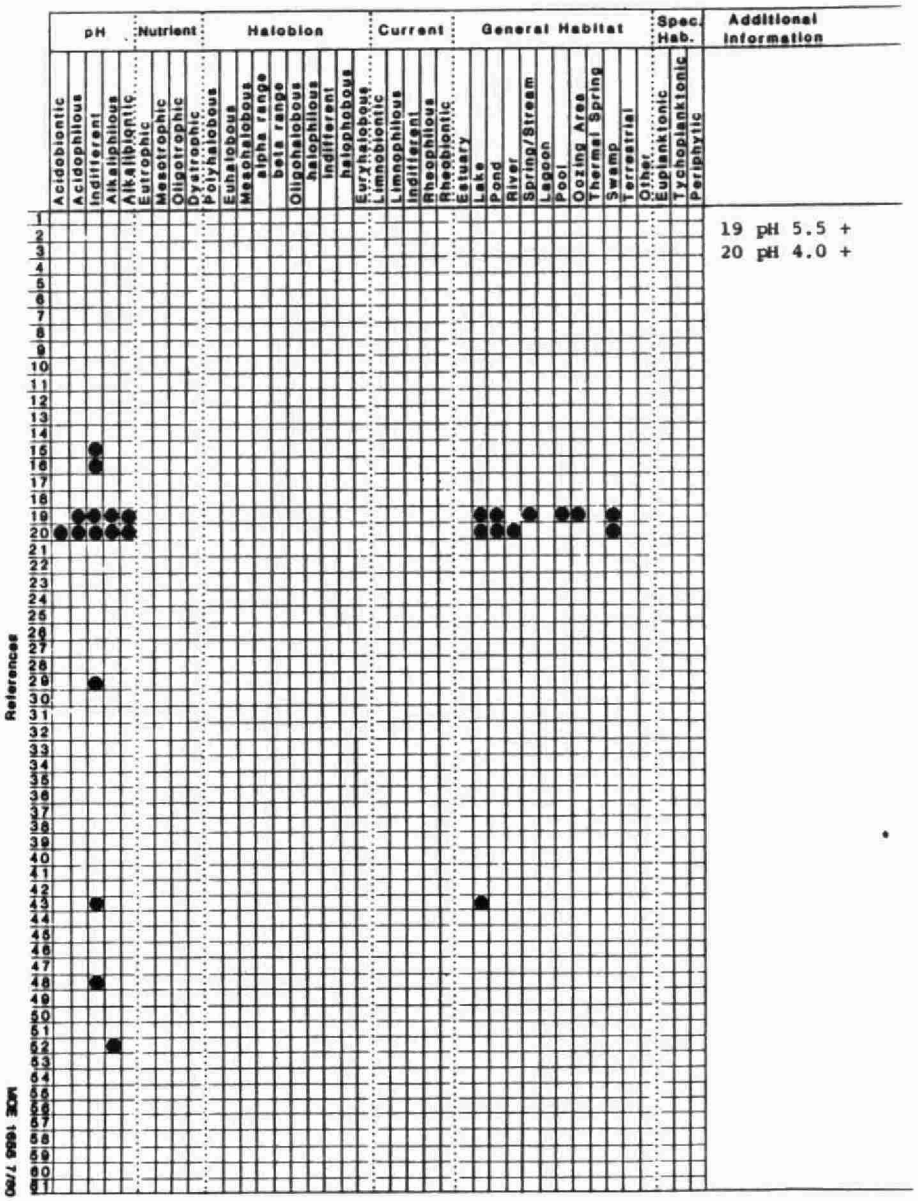


20 pH 8.5

Ministry of the Environment
Ontario

Taxon Cymbella cuspidata Kutz. var. cuspidata

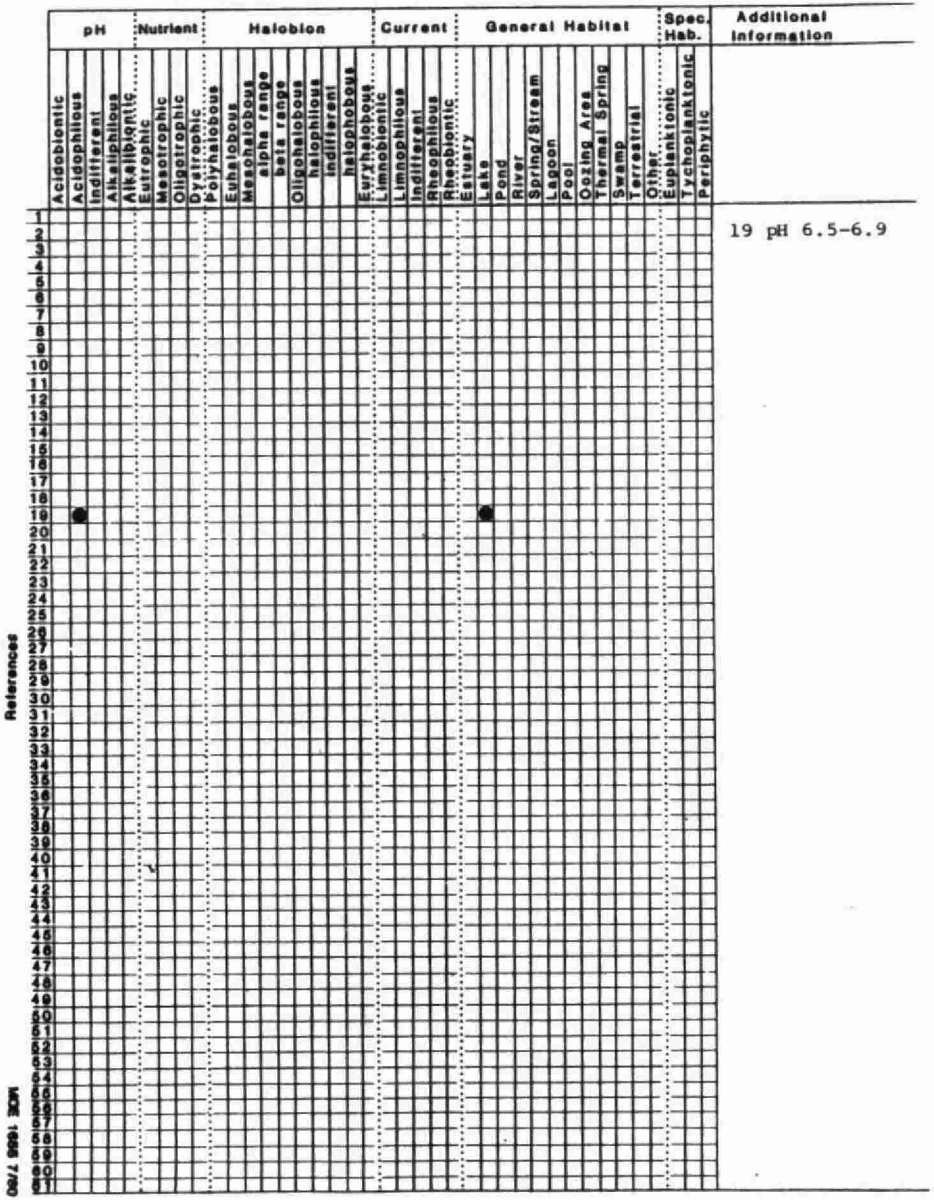
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella cuspidata var. schulzii Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Cymbella cymbiformis Ag. var. cymbiformis

Synonym

References	pH					Nutrient					Halobion											Current					General Habitat										Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 9886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella cymbiformis var. subrhomboidea Østr.

Synonym

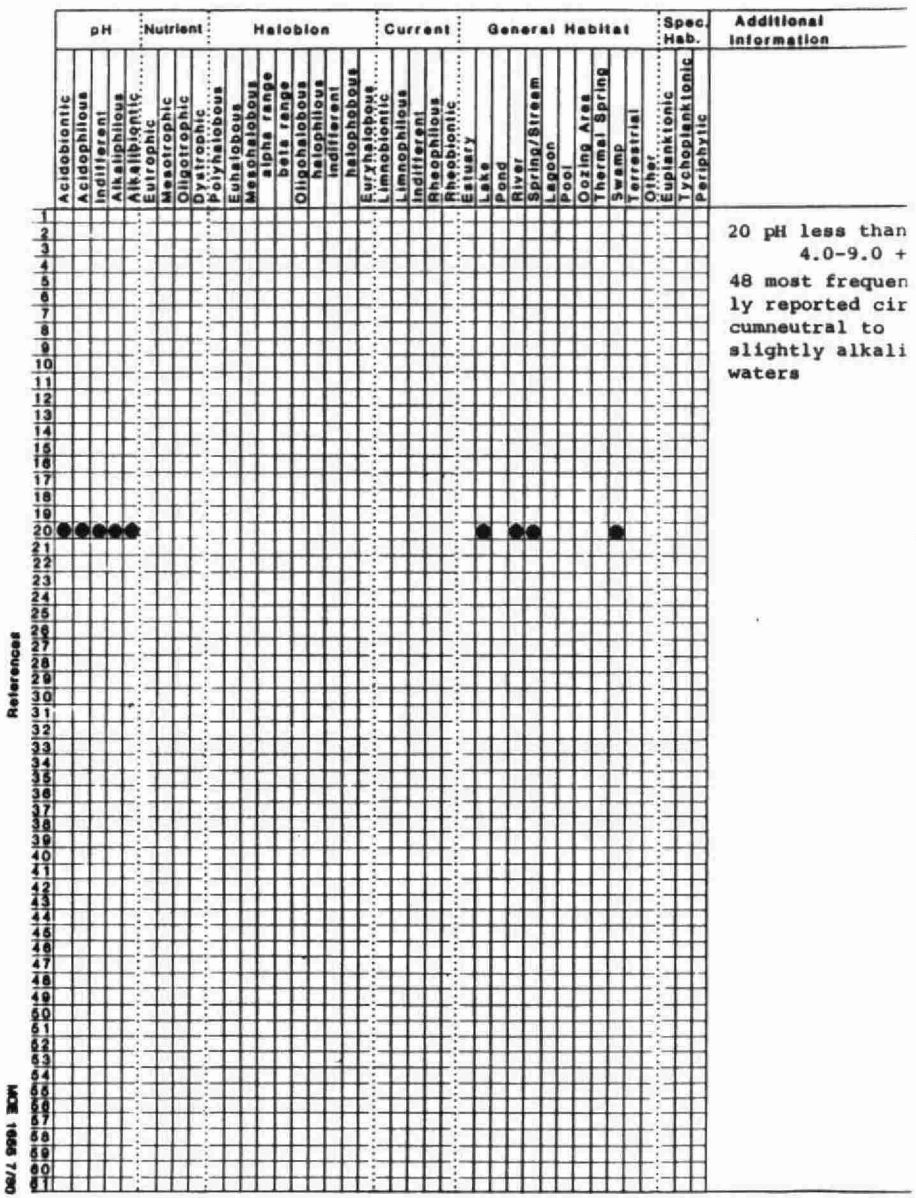
References	pH					Nutrient					Halobion											Current					General Habitat										Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 9886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella delicatula Kutz.

Synonym

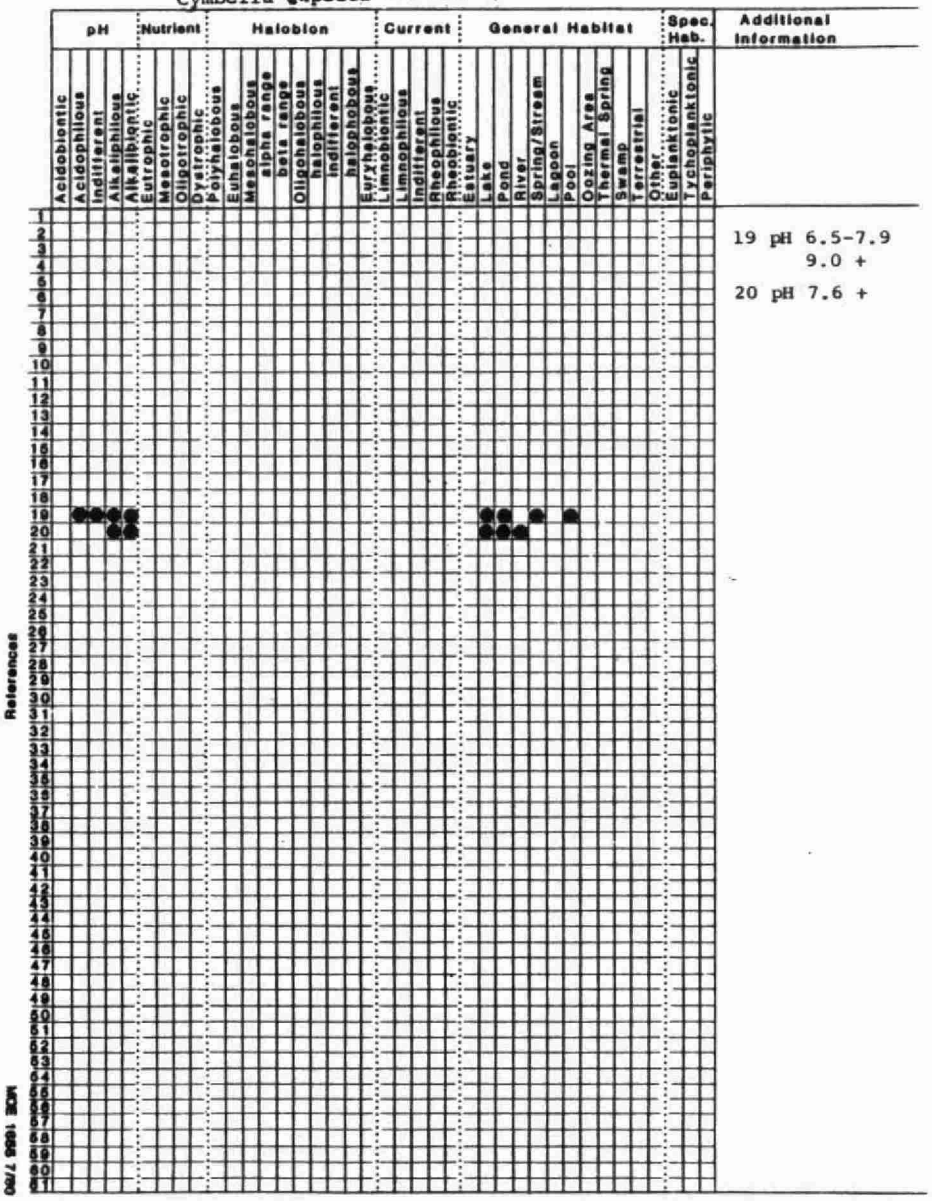


MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Cymbella diluviana (Krasske) Florin

Synonym Cymbella similis Patr./ Cymbella couleensis Sov./
Cymbella expecta VanLand



MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Cymbella gaeumannii Meist.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella hauckii V. Heurck

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella hebridica Grun. ex Cl.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	Halophobous	Current: Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
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Additional information:
19 pH 5.5 +
20 pH 4.0-6.5
7.6 +

MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Cymbella helvetica var. compacta (Østr.) Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	Halophobous	Current: Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
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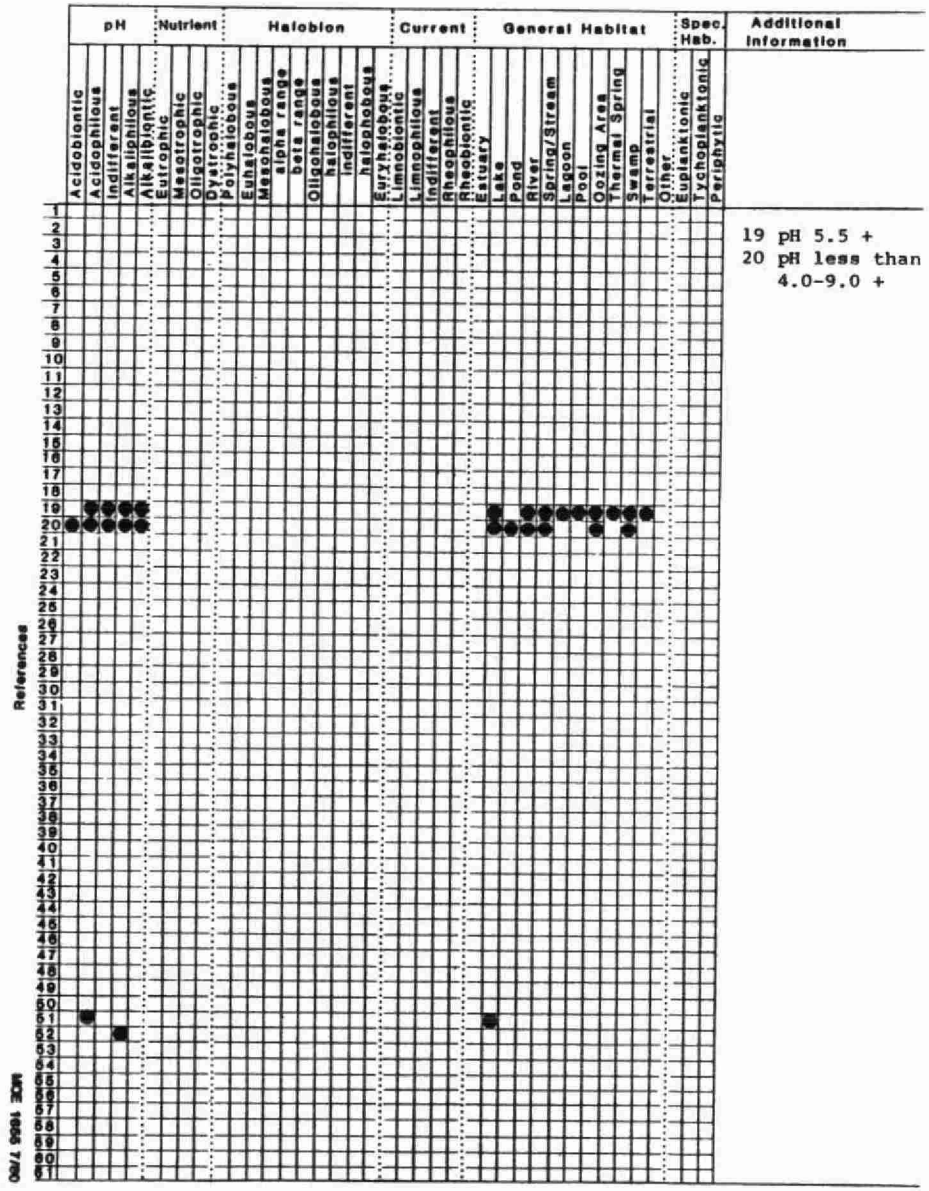
Additional information:
19 pH 7.0-7.4
8.0-8.4
9.0 +
20 pH less than
4.0-9.0 +

MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Cymbella helvetica Kutz. var. helvetica

Synonym

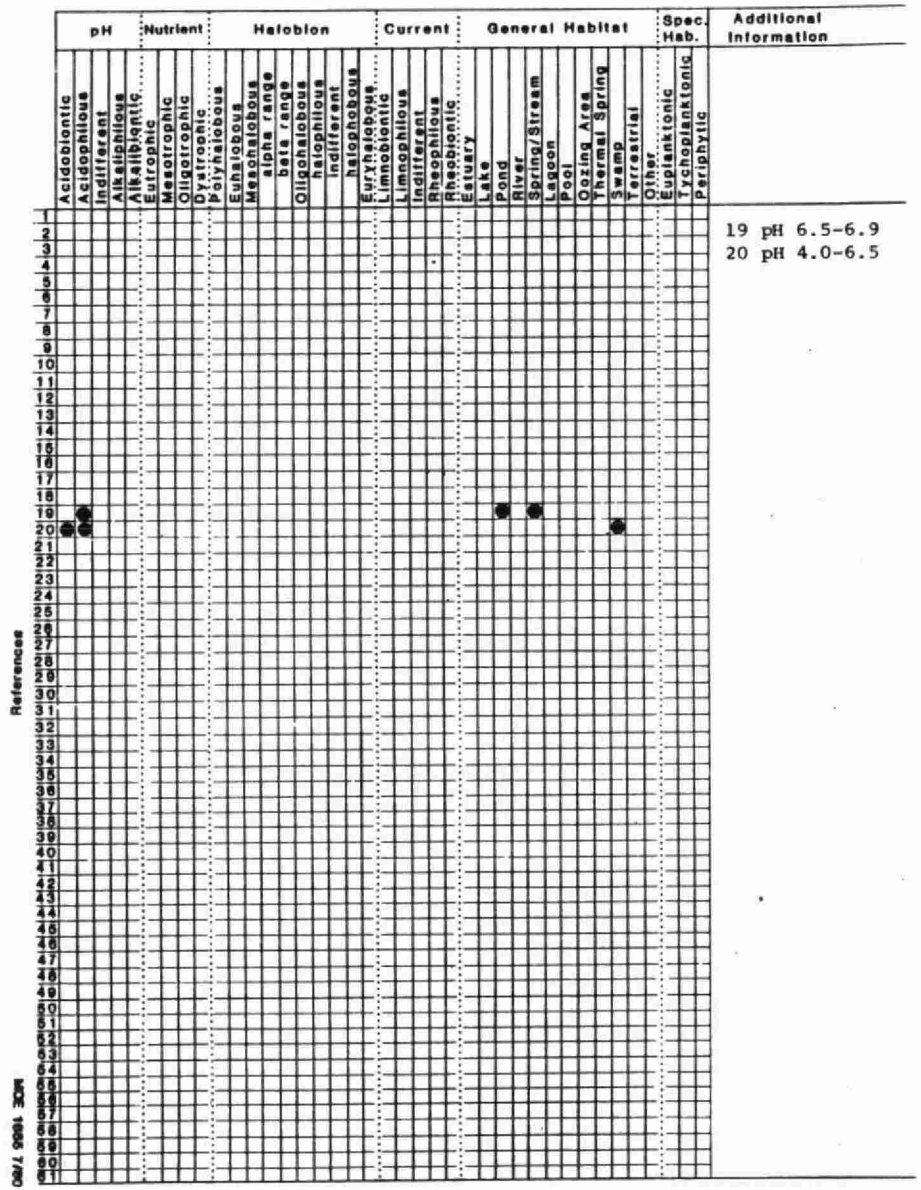


19 pH 5.5 +
20 pH less than 4.0-9.0 +

Ministry of the Environment
Ontario

Taxon Cymbella heteropleura (Ehr.) Kutz. var. heteropleura

Synonym

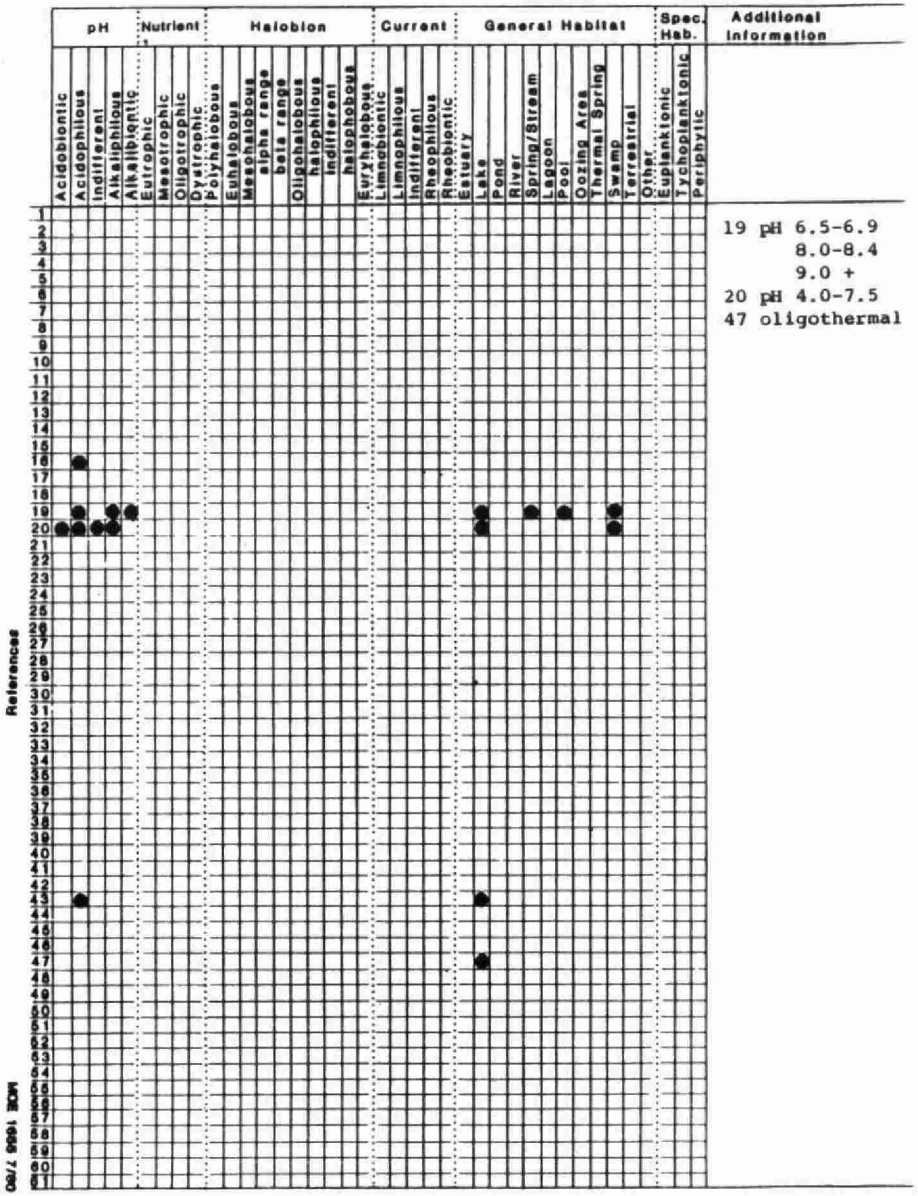


19 pH 6.5-6.9
20 pH 4.0-6.5

Ministry of the Environment
Ontario

Taxon Cymbella heteropleura var. minor Cl.

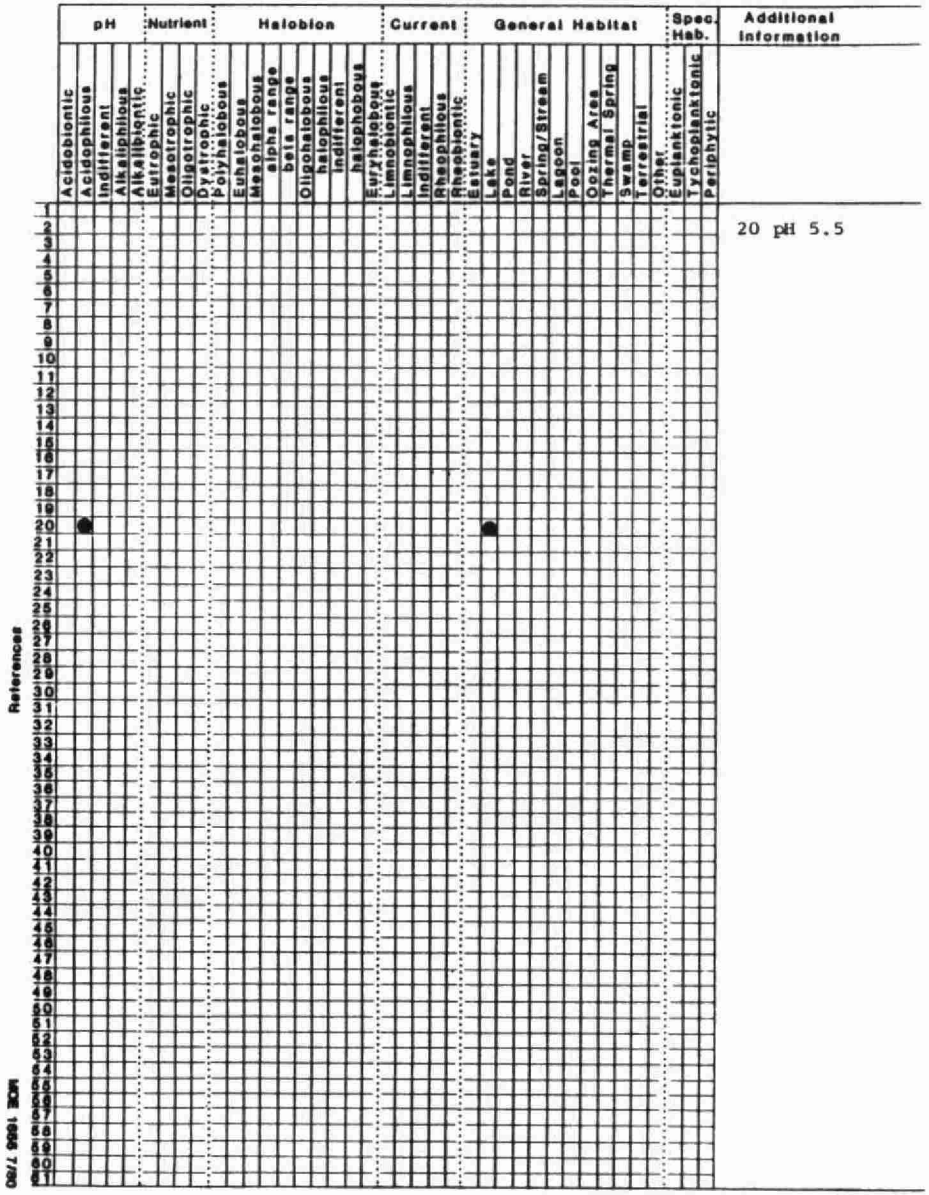
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella hilliardi Mang.

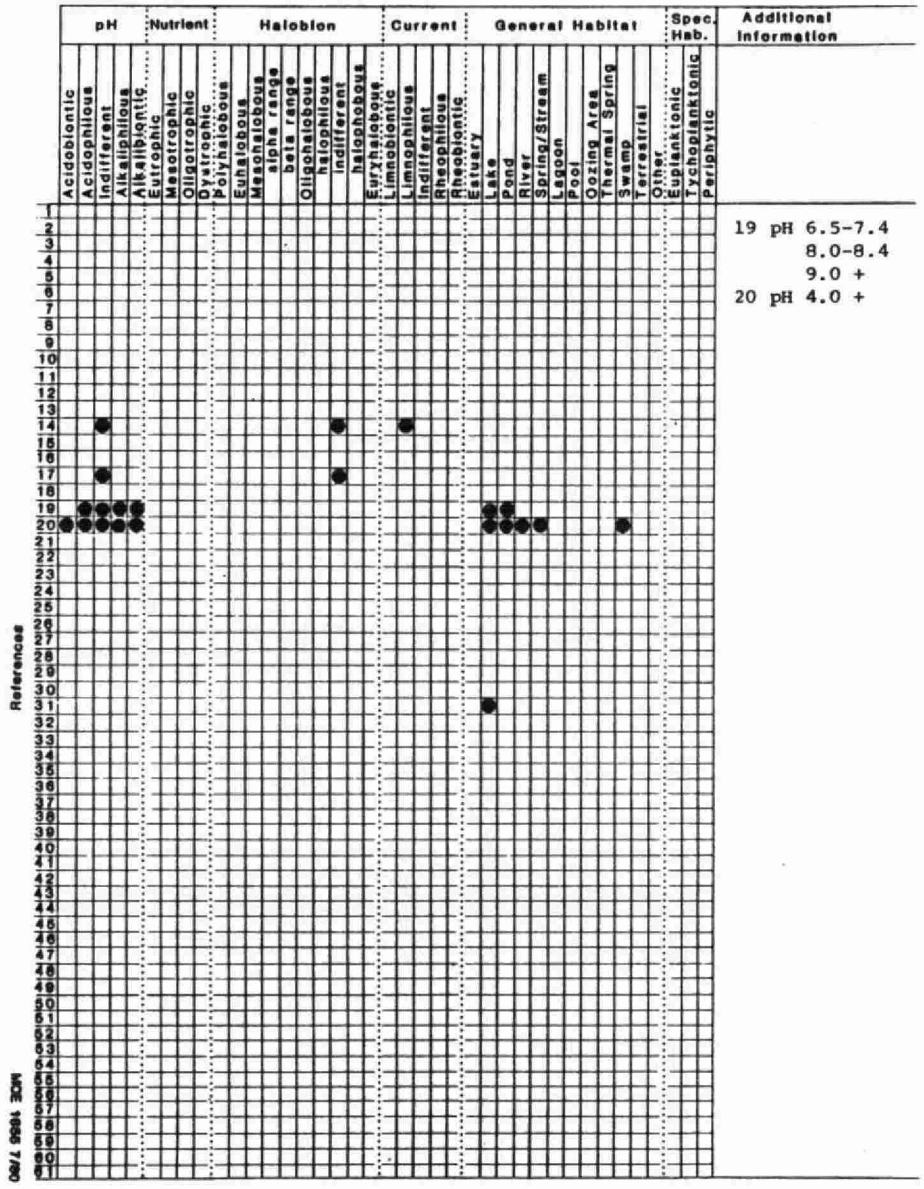
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella hustedtii Krasske

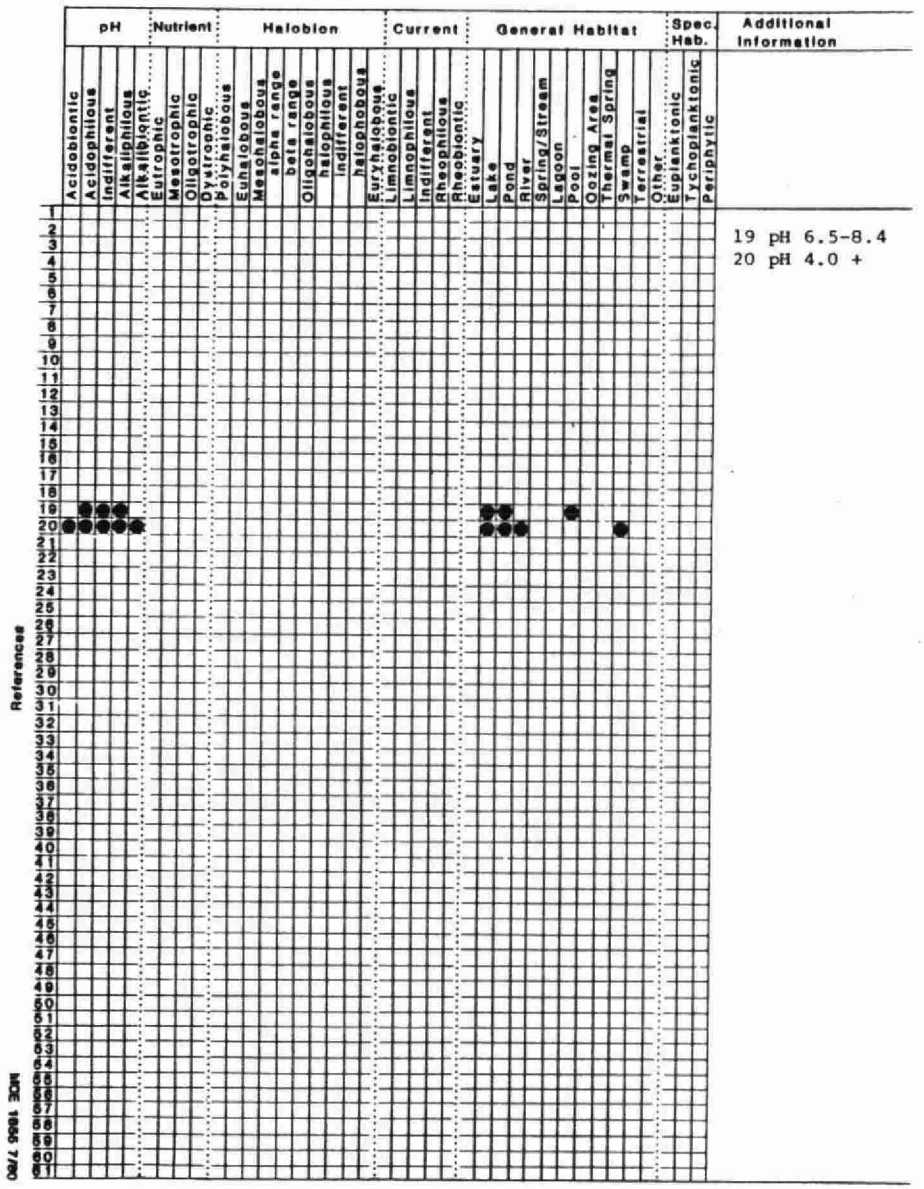
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella hybrida Grun. ex Cl.

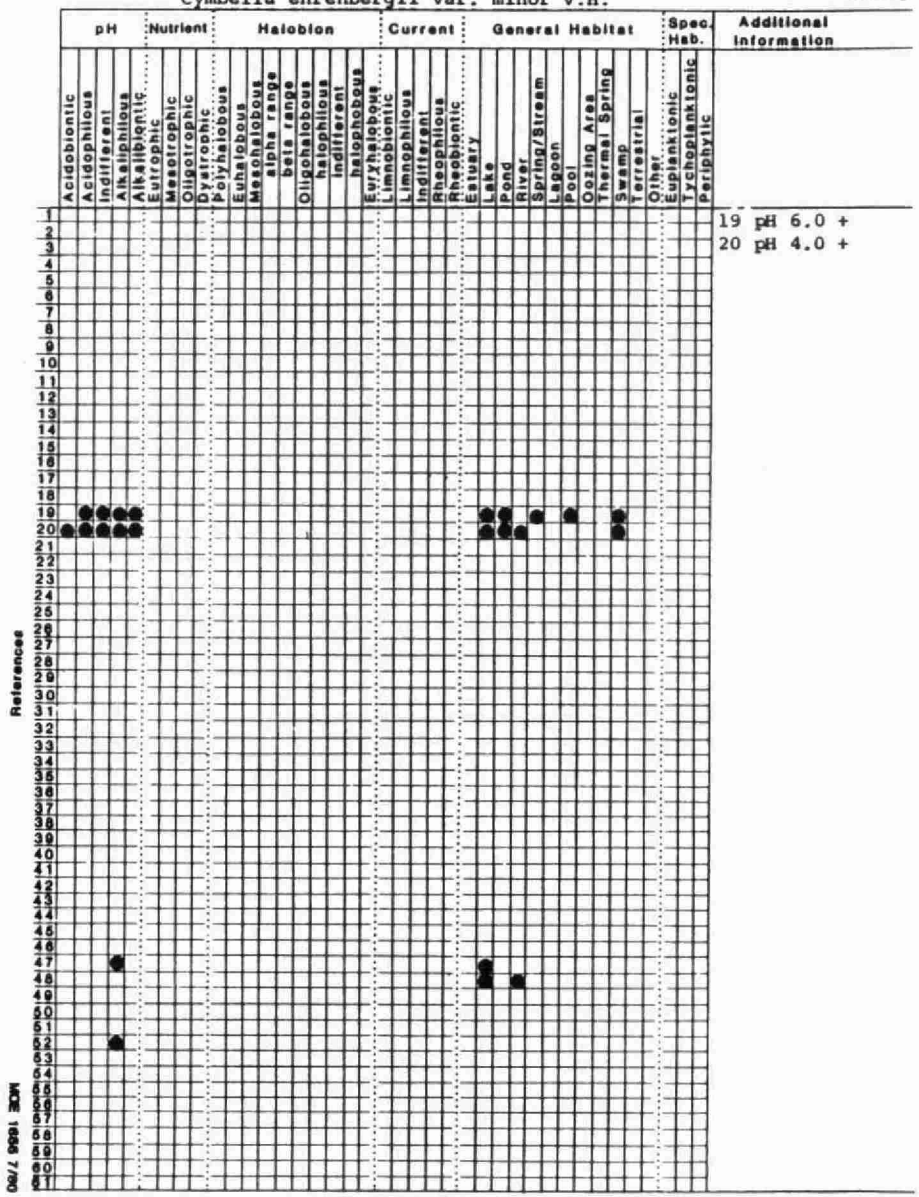
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella inaequalis (Ehr.) Rabh.

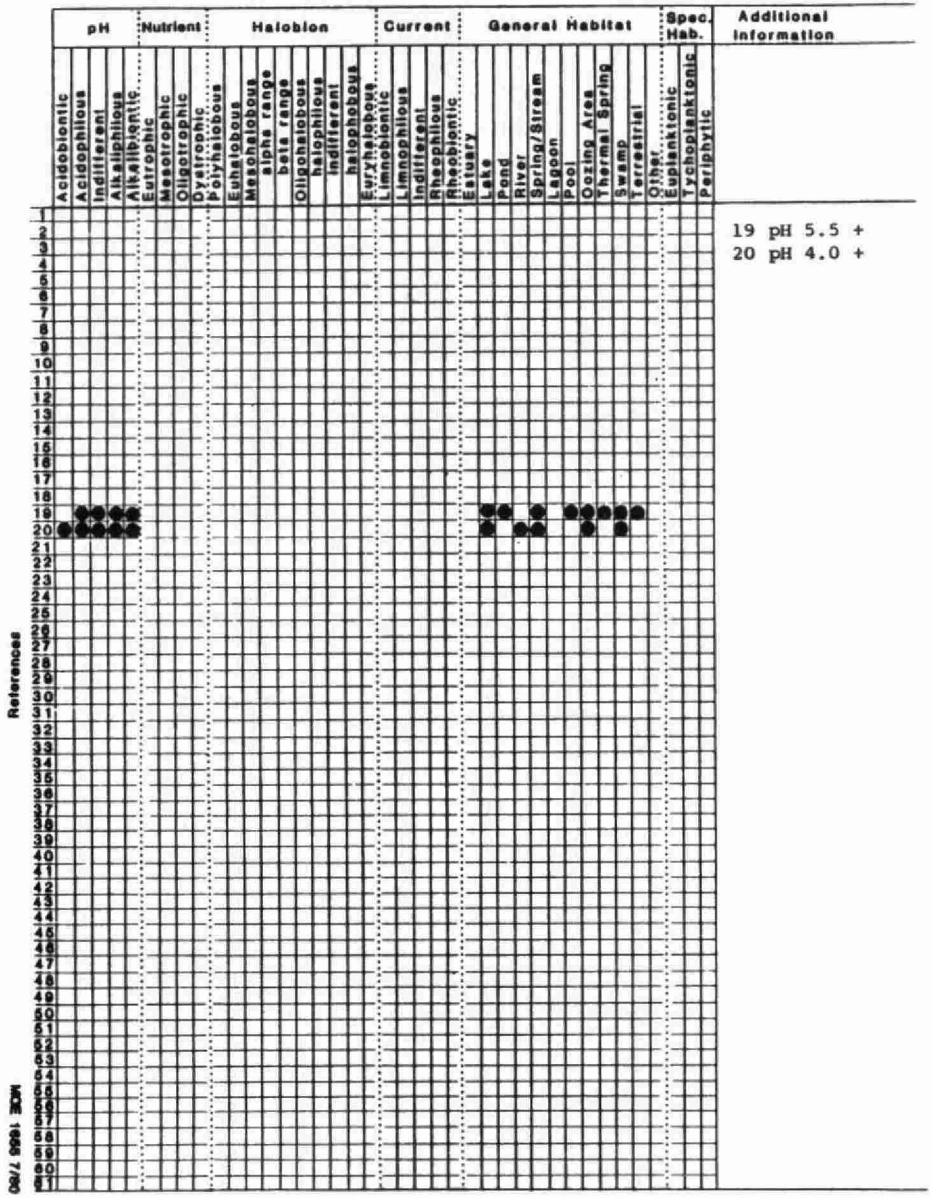
Synonym Cymbella ehrenbergii Kutz./ C. cucumis var. delicata Temp. & Perag
Cymbella ehrenbergii var. minor V.H.



Ministry of the Environment
Ontario

Taxon Cymbella incerta (Grun.) Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Cymbella kappii

Synonym

pH						Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic		Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 7/80

Ministry of the Environment
Ontario

Taxon Cymbella lacustris (Ag.) Cl.

Synonym

pH						Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic		Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	20 pH less than 4.0-9.0 +
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References

MOE 7/80

Ministry of the Environment
Ontario

Taxon Cymbella laevis Naeg.ex Kutz.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
20	●	●	●	●	●																				●		●						●								20 pH 6.6 +

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Cymbella lanceolata (Ag.) Ag. var. lanceolata

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
19		●	●	●	●																					●		●			●			●								19 pH 6.5 +
20	●	●	●	●	●																					●	●	●						●								20 pH 4.0 +
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47				●				●																		●																shallow, littora
48				●														●																								habitats associa
52		●		●																																					ed with submerge
																																									aquatic plants

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Cymbella lanceolata var. notata Wisl. & Poretzky

Synonym

	pH					Nutrient				Halobion										Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Cymbella lapponica Grun. ex Cl.

Synonym

	pH					Nutrient				Halobion										Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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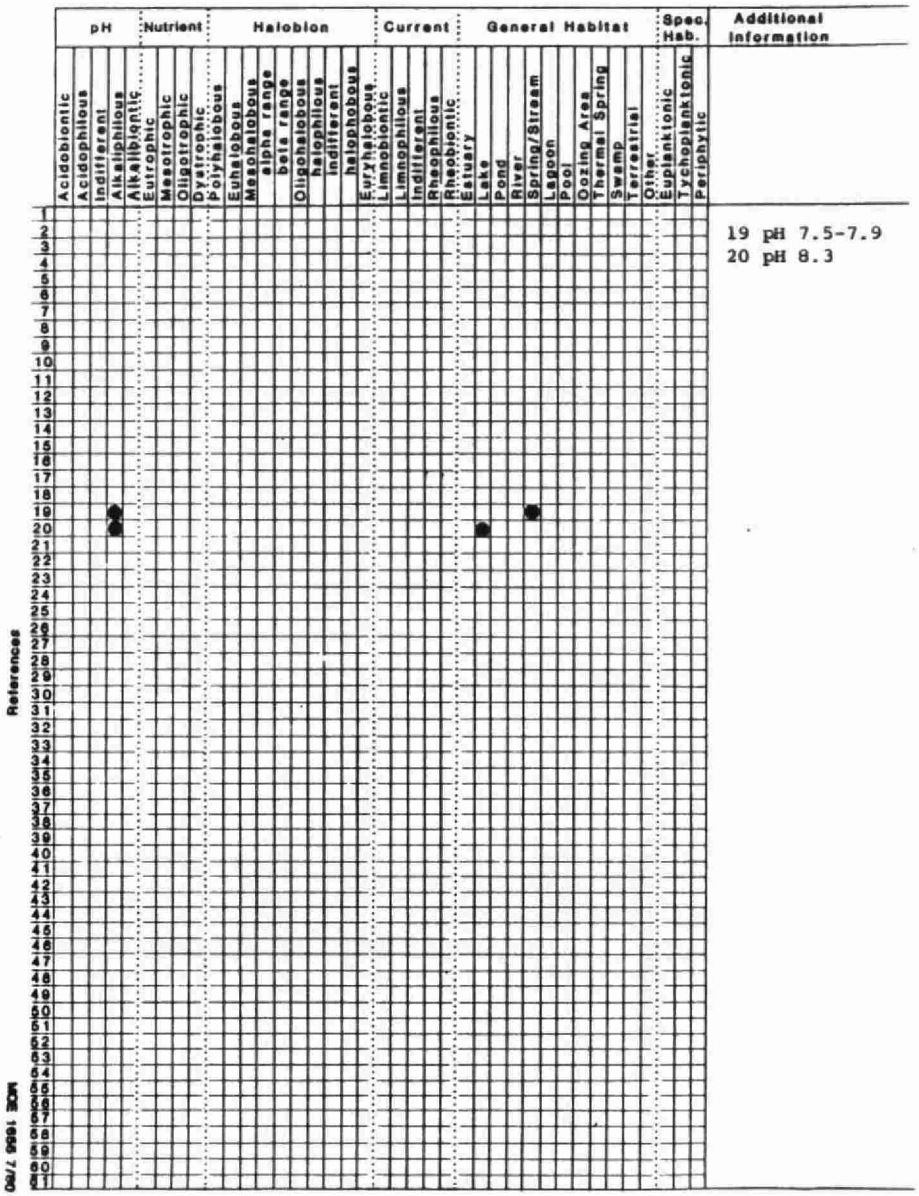
References

MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Cymbella lata Grun.

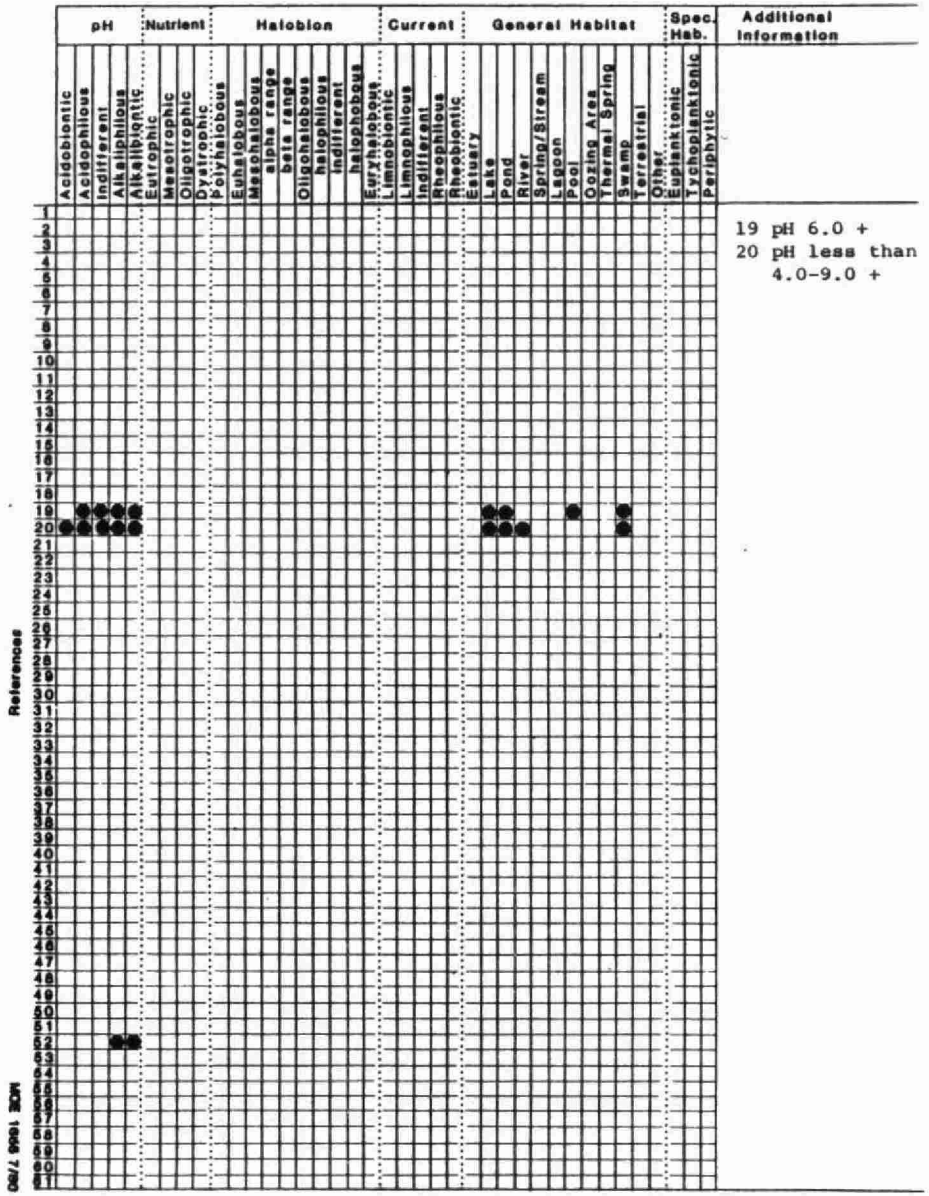
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella leptoceros (Ehr.) Kutz.

Synonym

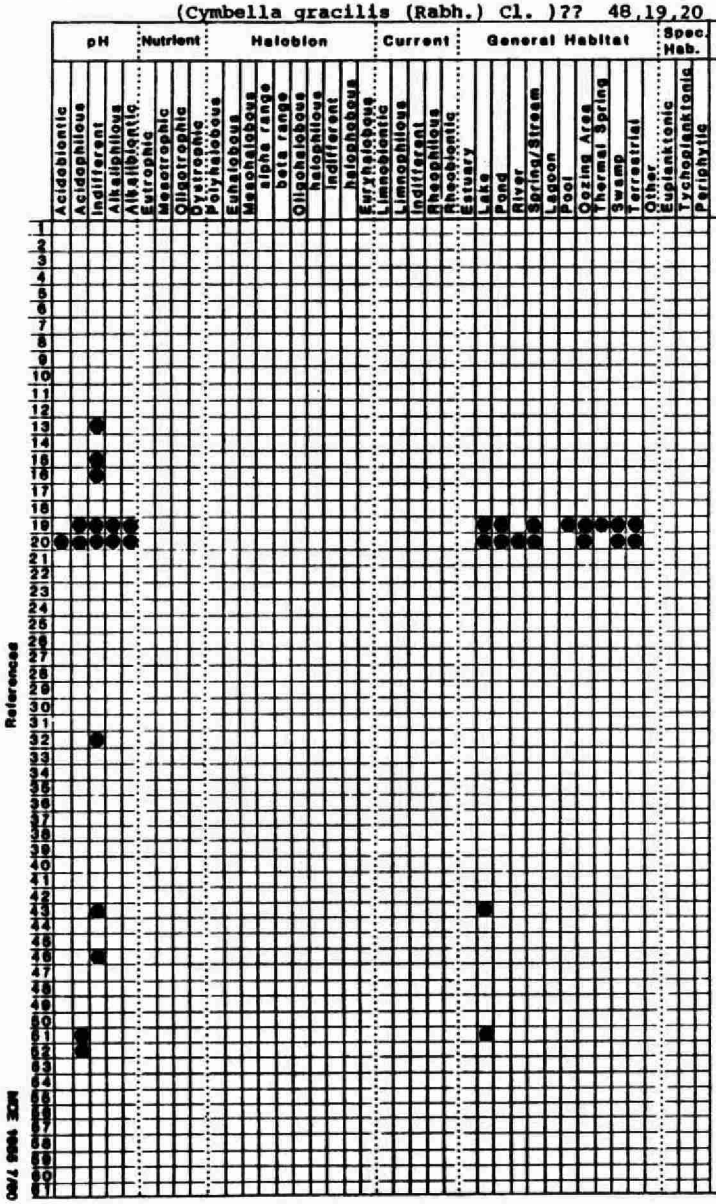


Ministry of the Environment
Ontario

Taxon Cymbella lunata W. Sm.

Synonym Cymbella gracilis (Ehr.) Kütz.??

(Cymbella gracilis (Rabh.) Cl.)?? 48,19,20

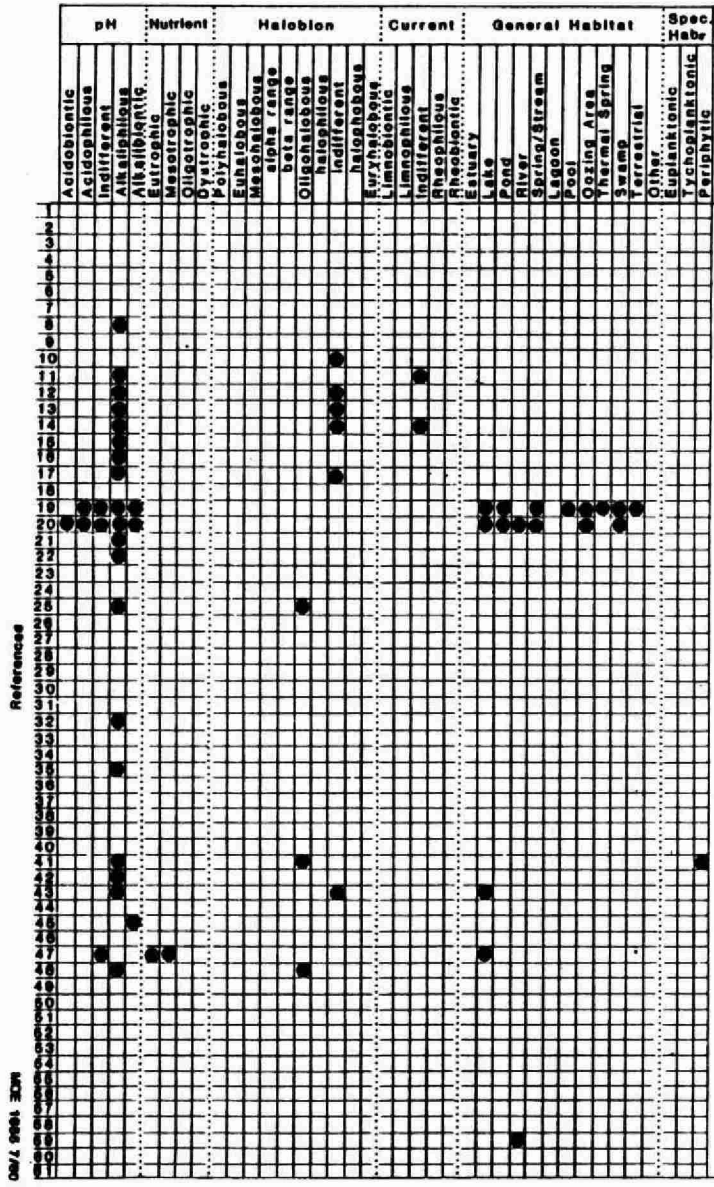


19 pH 5.5-7.4
8.0 +
20 pH less than
4.0-9.0 +

Ministry of the Environment
Ontario

Taxon Cymbella microcephala Grun.

Synonym

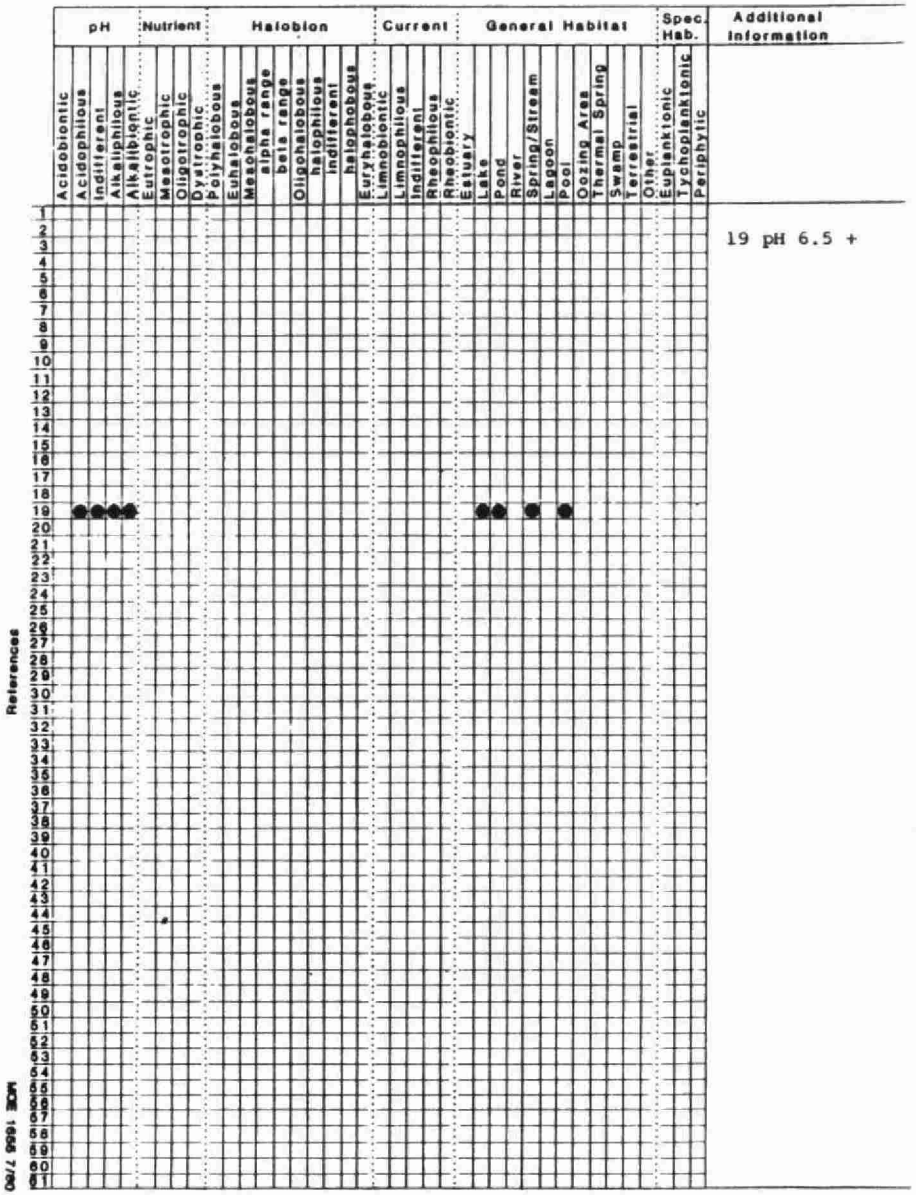


8 pH optimum around 7.2
8 oxygen saturation is optima
10 beta-meso-saprobic
11,16,32 pH range 4.3-9.0
19 pH 5.5 +
20 pH less than 4.0-9.0 +
25 cosmopolitan
45 calcium indifferent
48 appears more commonly in wel aerated habitat

Ministry of the Environment
Ontario

Taxon Cymbella minuta f. latens (Krasske) Reim.

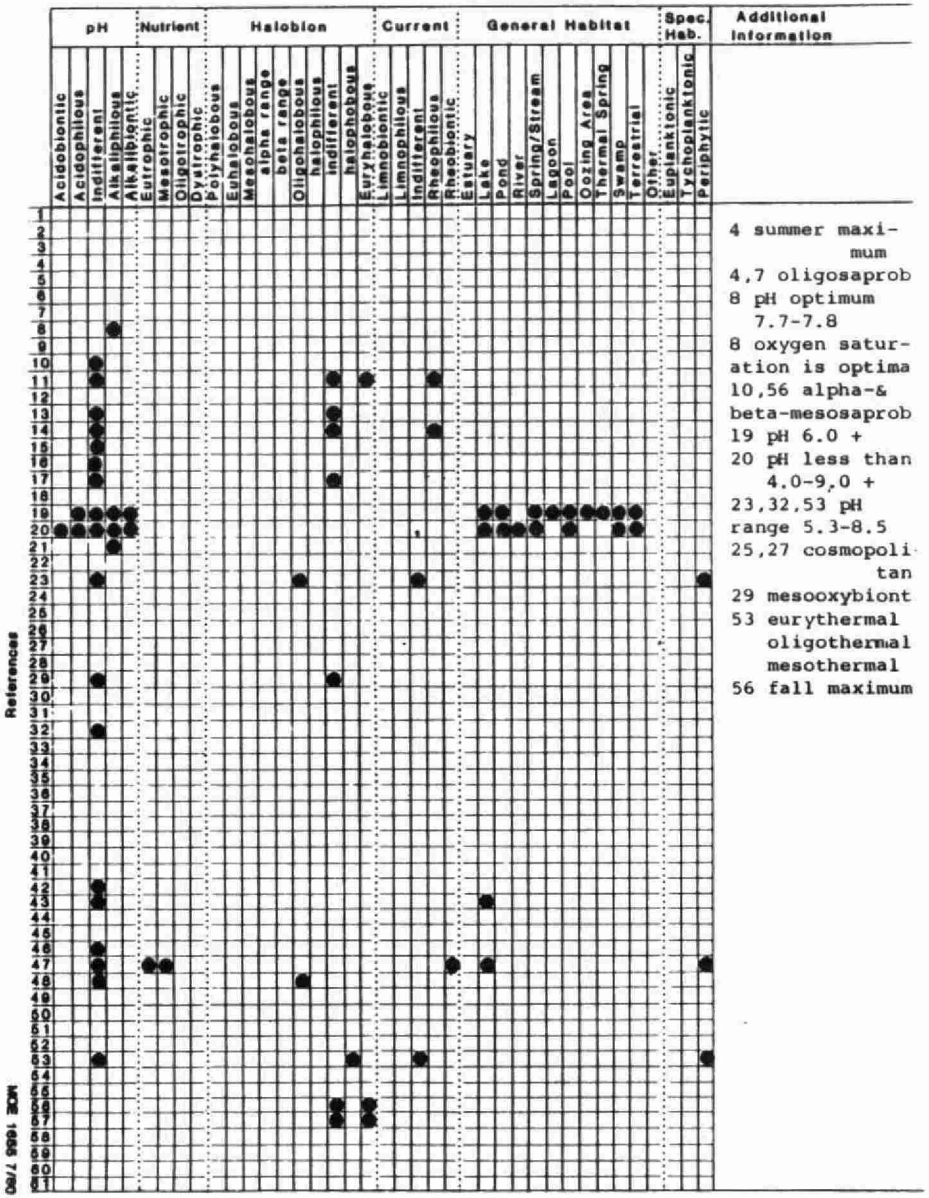
Synonym Cymbella latens Krasske



Ministry of the Environment
Ontario

Taxon Cymbella minuta Hilse ex Rabh. var. minuta

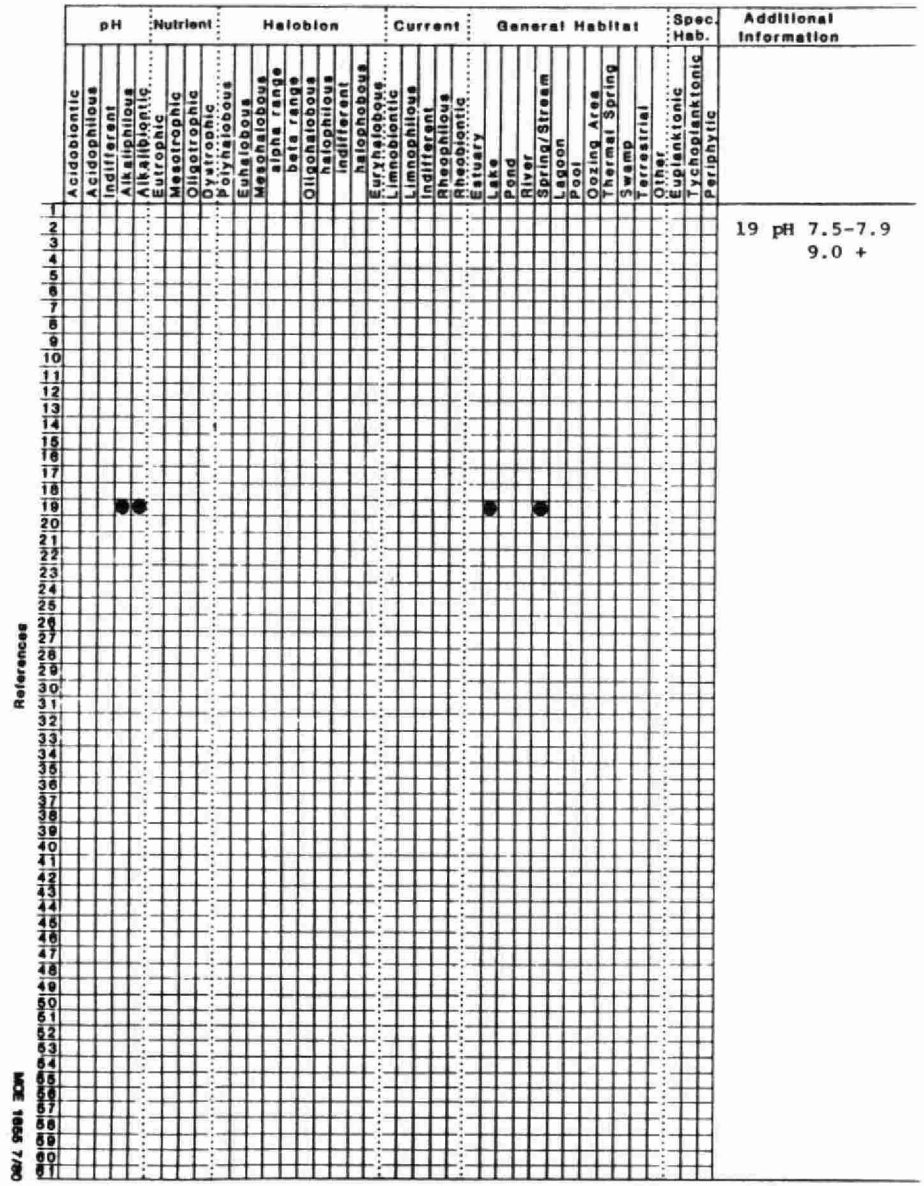
Synonym Cymbella ventricosa(Ag.) Ag.



Ministry of the Environment
Ontario

Taxon Cymbella muelleri var. groenlandica Foged

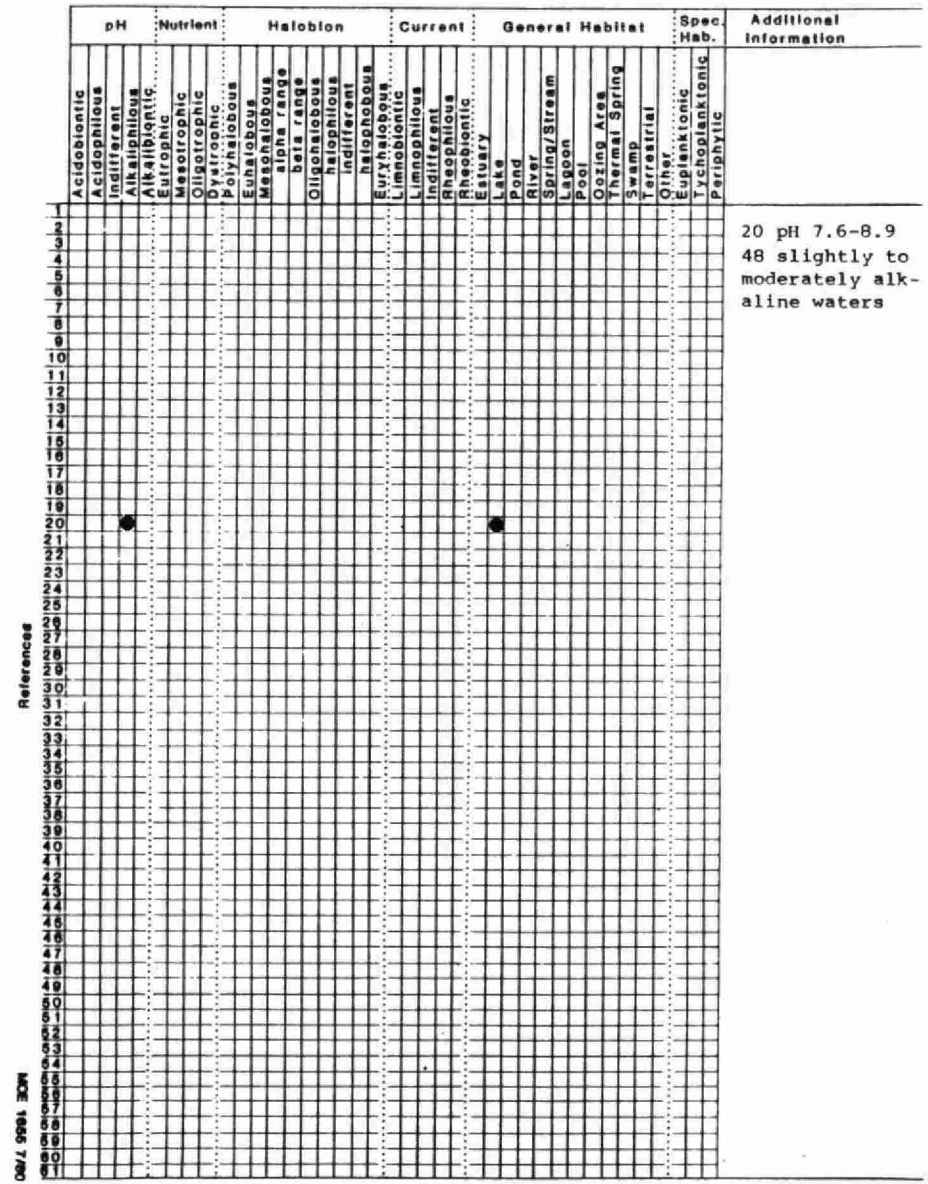
Synonym (= Cymbella muelleri f. ventricosa (Temp. & Perag.) Reim.??)



Ministry of the Environment
Ontario

Taxon Cymbella minuta var. pseudogracilis (Choln.) Reim.

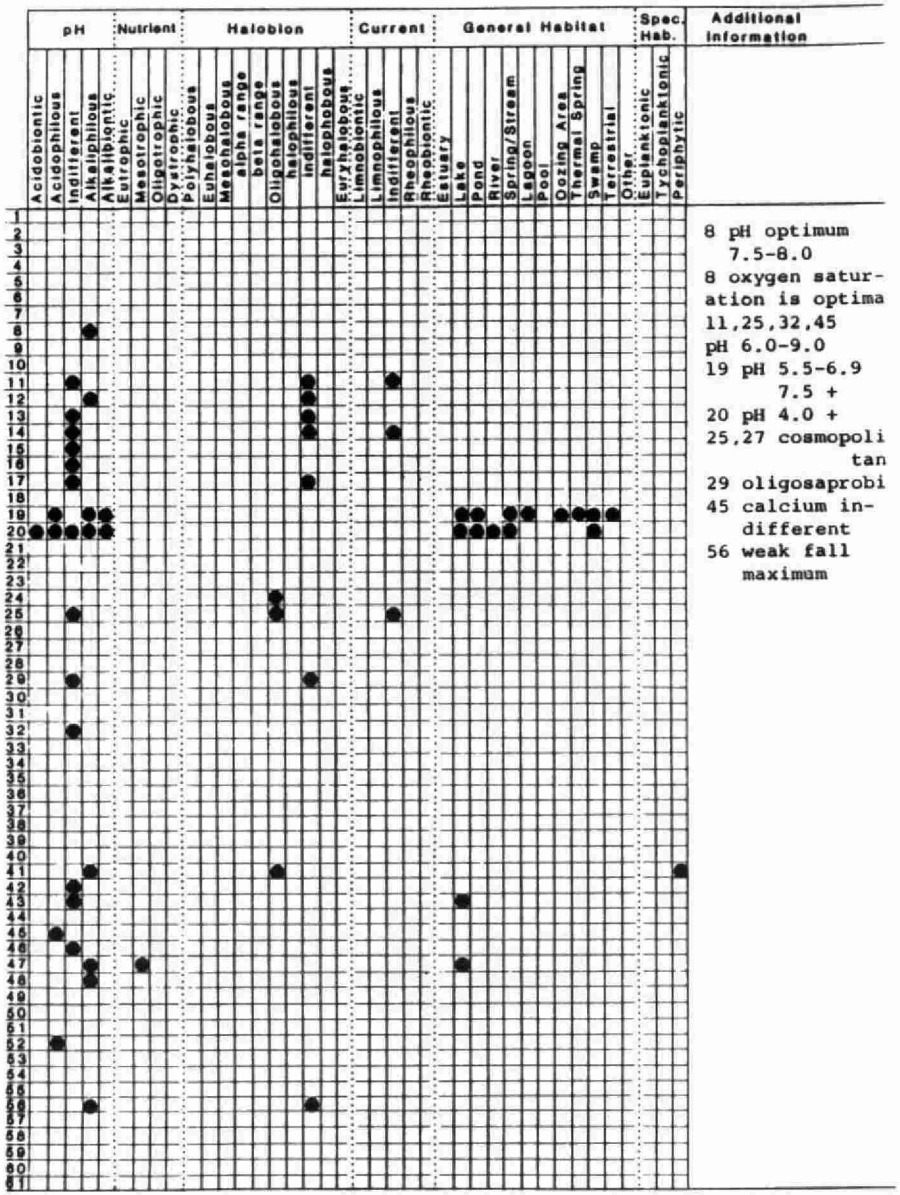
Synonym Cymbella turgida var. pseudogracilis Choln.



Ministry of the Environment
Ontario

Taxon Cymbella naviculiformis Auersw.ex Heib.

Synonym



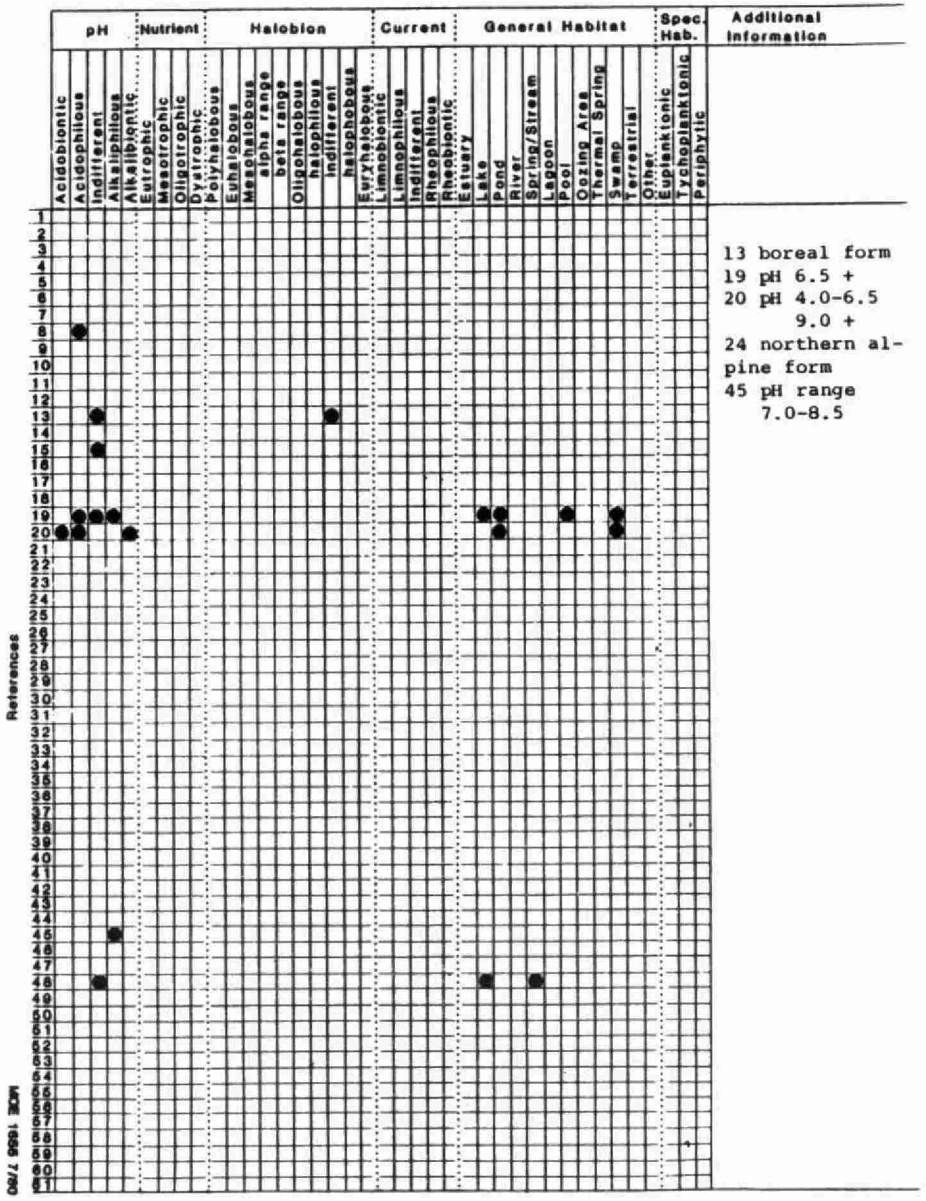
8 pH optimum 7.5-8.0
8 oxygen saturation is optima 11,25,32,45
pH 6.0-9.0
19 pH 5.5-6.9
7.5 +
20 pH 4.0 +
25,27 cosmopolitan
29 oligosaprobi
45 calcium indifferent
56 weak fall maximum

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Cymbella norvegica Grun.

Synonym



13 boreal form
19 pH 6.5 +
20 pH 4.0-6.5
9.0 +
24 northern alpine form
45 pH range 7.0-8.5

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Cymbella obscura Krasske

Synonym

	pH					Nutrient				Halobion									Current				General Habitat									Spec. Hab.			Additional Information
References	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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19 pH 6.5-6.9
7.5-7.9

MOE 1865 7/80

Ministry of the Environment
Ontario

Taxon Cymbella obtusiuscula (Kutz.) Grun.

Synonym

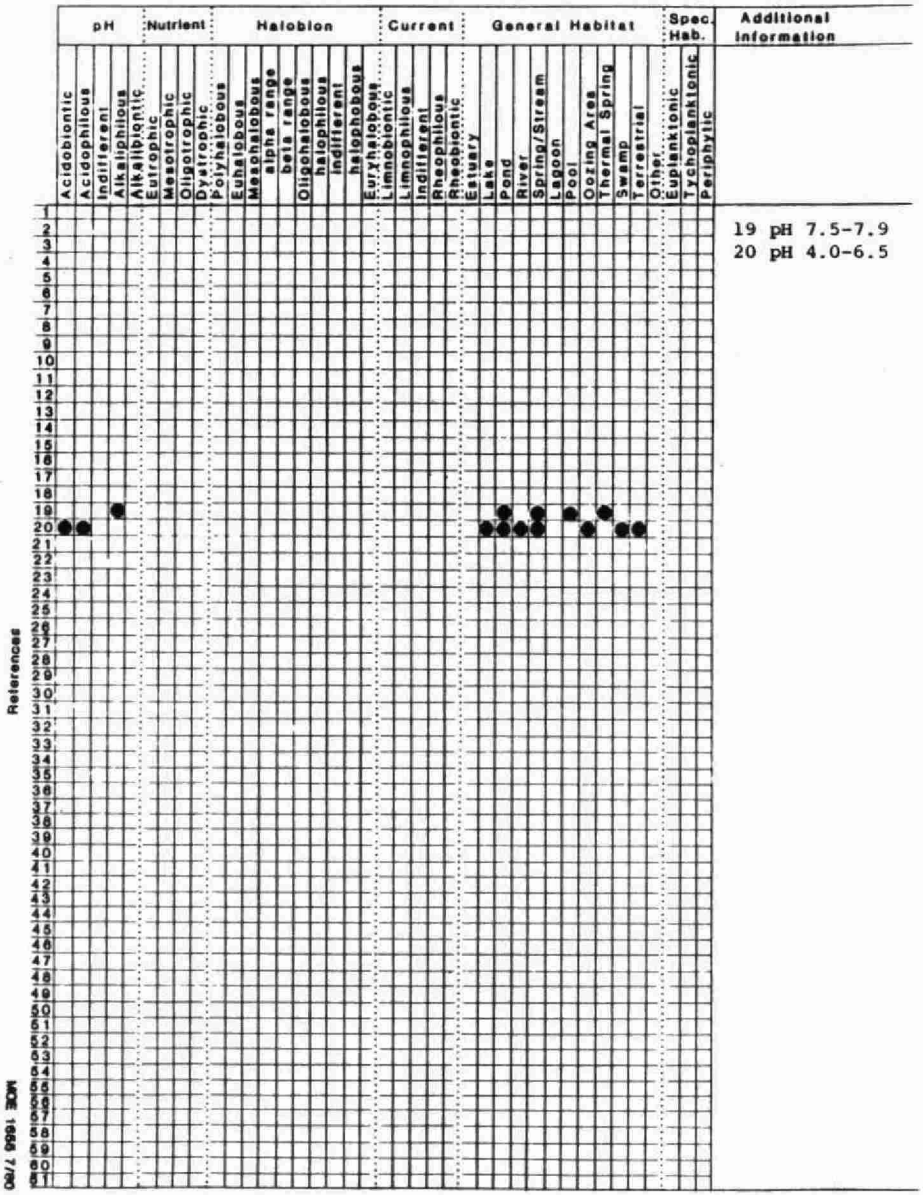
	pH					Nutrient				Halobion									Current				General Habitat									Spec. Hab.			Additional Information
References	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20 pH 4.0 +

MOE 1865 7/80

Taxon Cymbella perpusilla Cl.

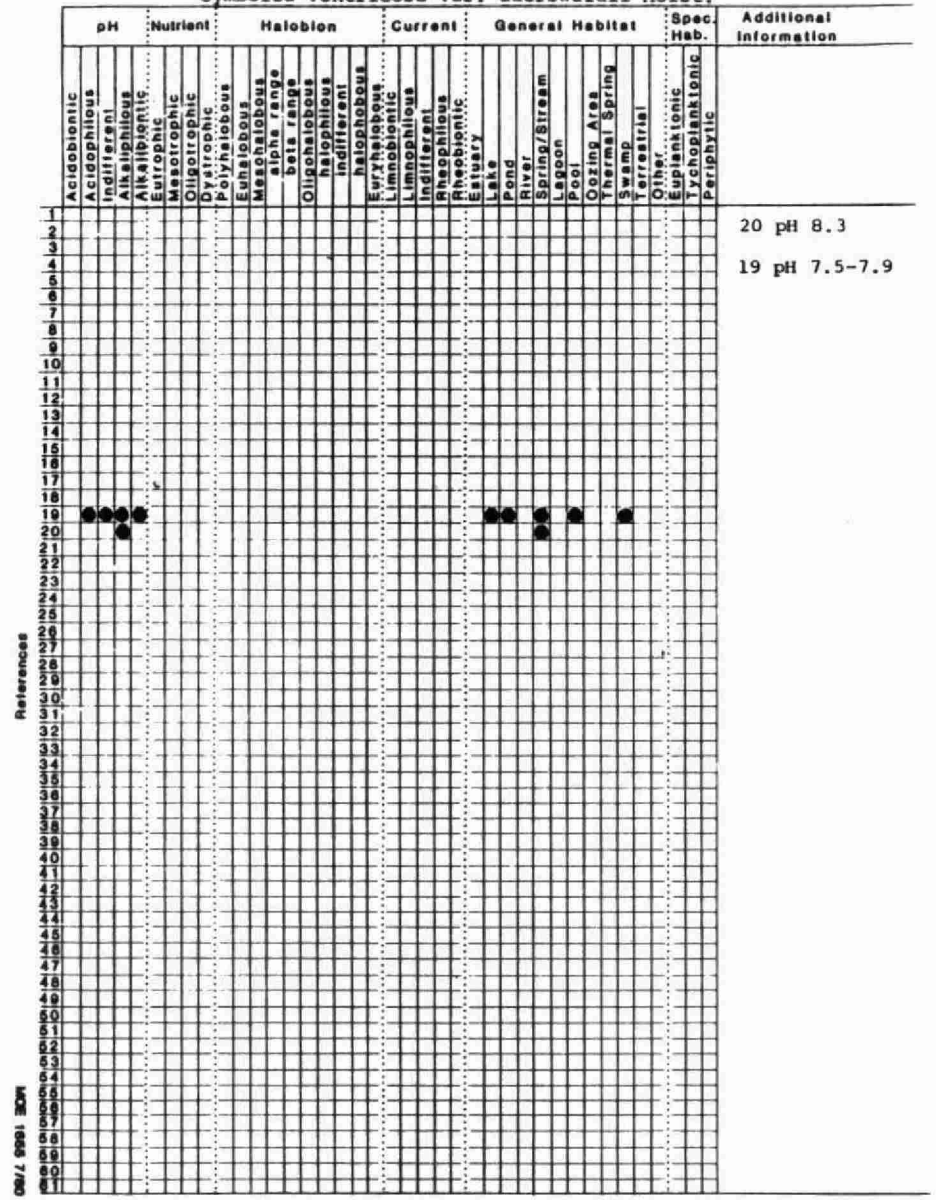
Synonym



Taxon Cymbella prostrata var. auerswaldii (Rabh.) Reim.

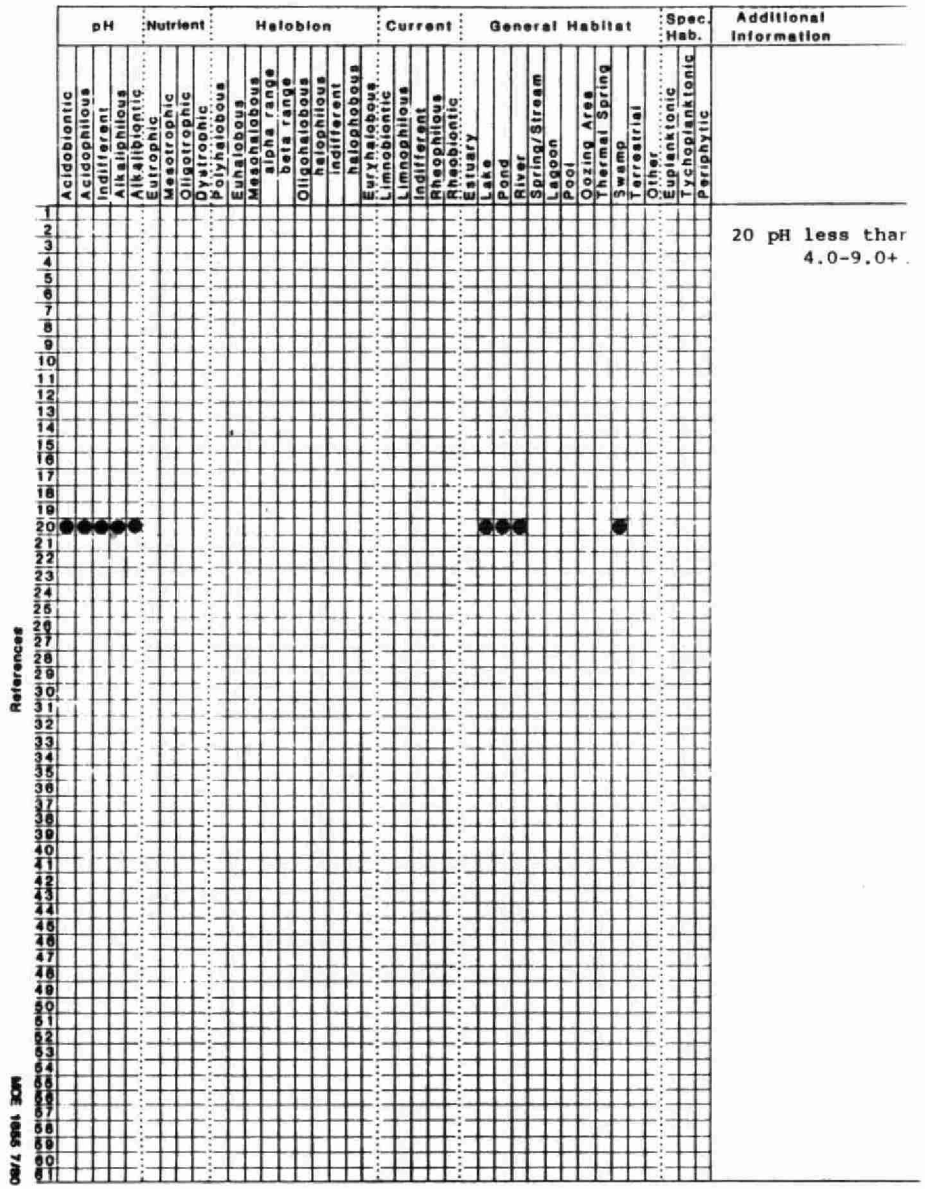
Synonym Cymbella caespitosum (Kutz.) Brun.

Cymbella ventricosa var. auerswaldii Meist.



Taxon Cymbella prostrata var. caespitosa (Kutz.) Foged

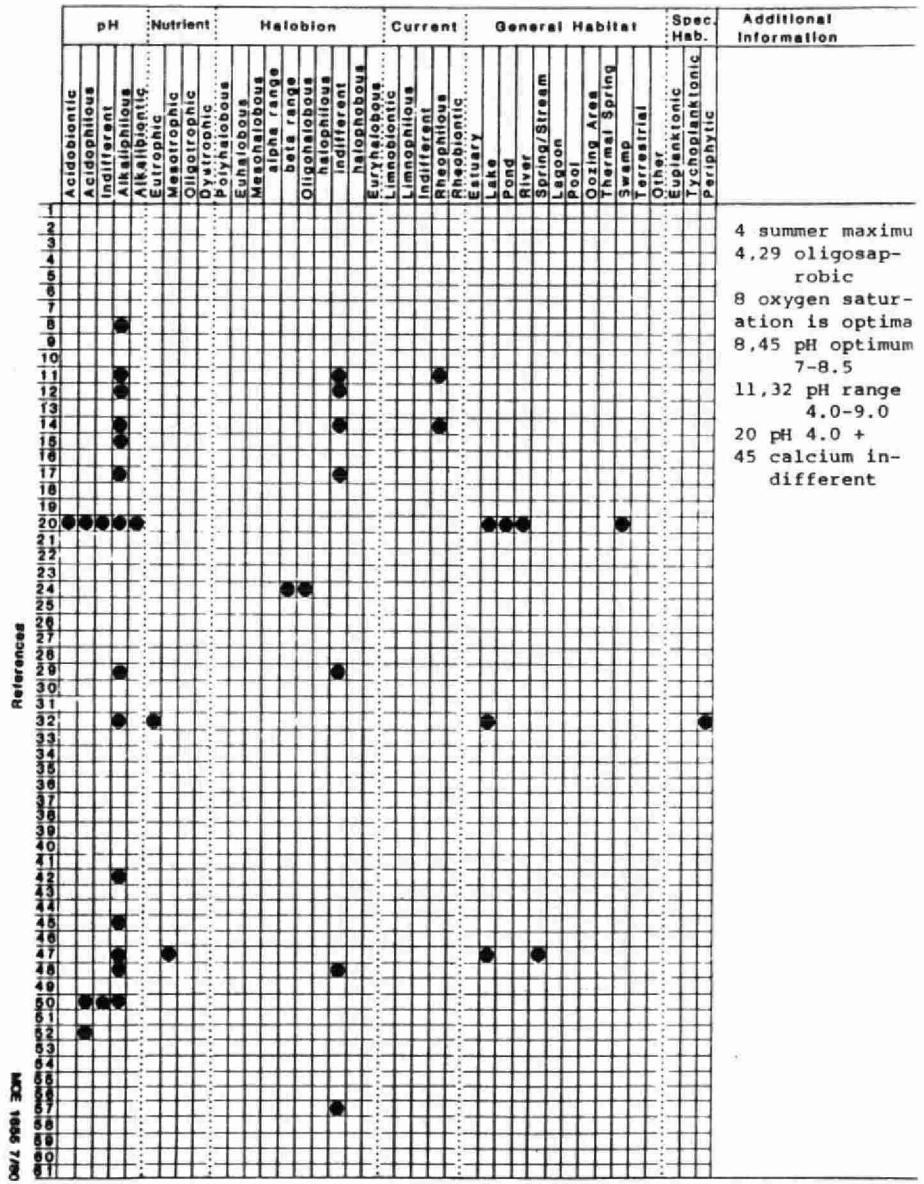
Synonym Cymbella caespitosa Kutz. var. caespitosa



20 pH less thar
4.0-9.0+

Taxon Cymbella prostrata (Berk.) Cl. var. prostrata

Synonym



4 summer maximu
4,29 oligosap-
robic
8 oxygen satur-
ation is optima
8,45 pH optimum
7-8.5
11,32 pH range
4.0-9.0
20 pH 4.0 +
45 calcium in-
different

Ministry of the Environment
Ontario

Taxon Cymbella pseudonorvegica Haw.

Synonym

	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella pusilla Grun.

Synonym

	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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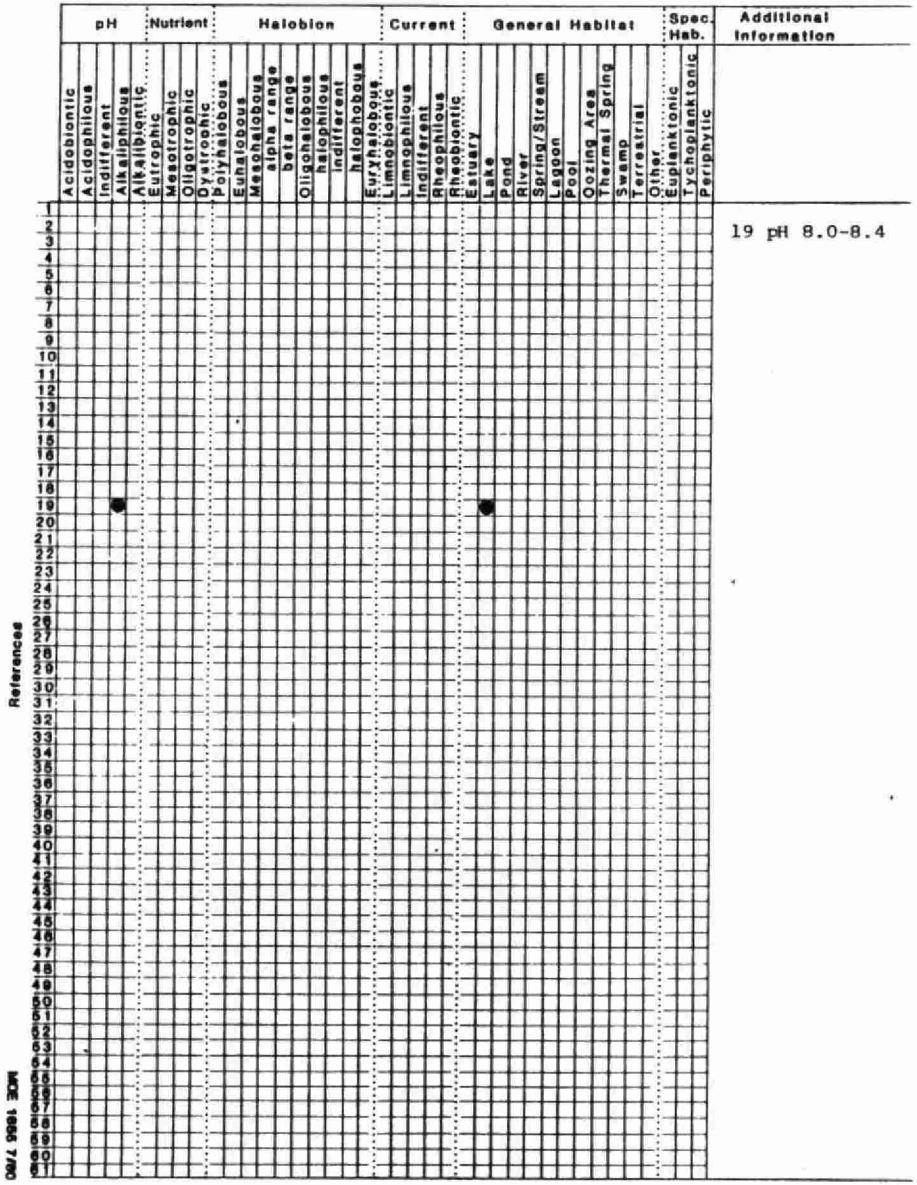
References

MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Cymbella reinhardtii Grun.

Synonym



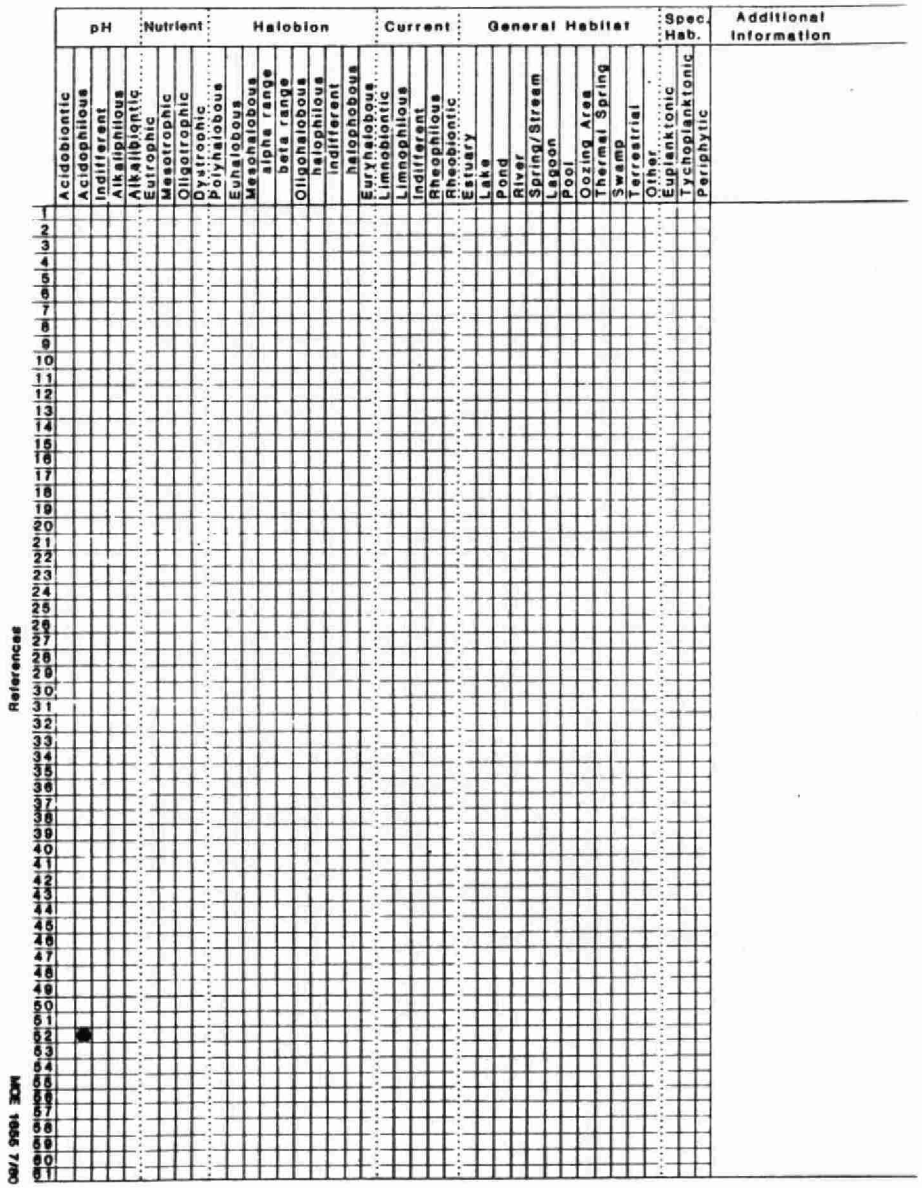
Additional Information

19 pH 8.0-8.4

Ministry of the Environment
Ontario

Taxon Cymbella rupicola Grun.

Synonym Cymbella laevis var. rupicola (Grun.) V. H.

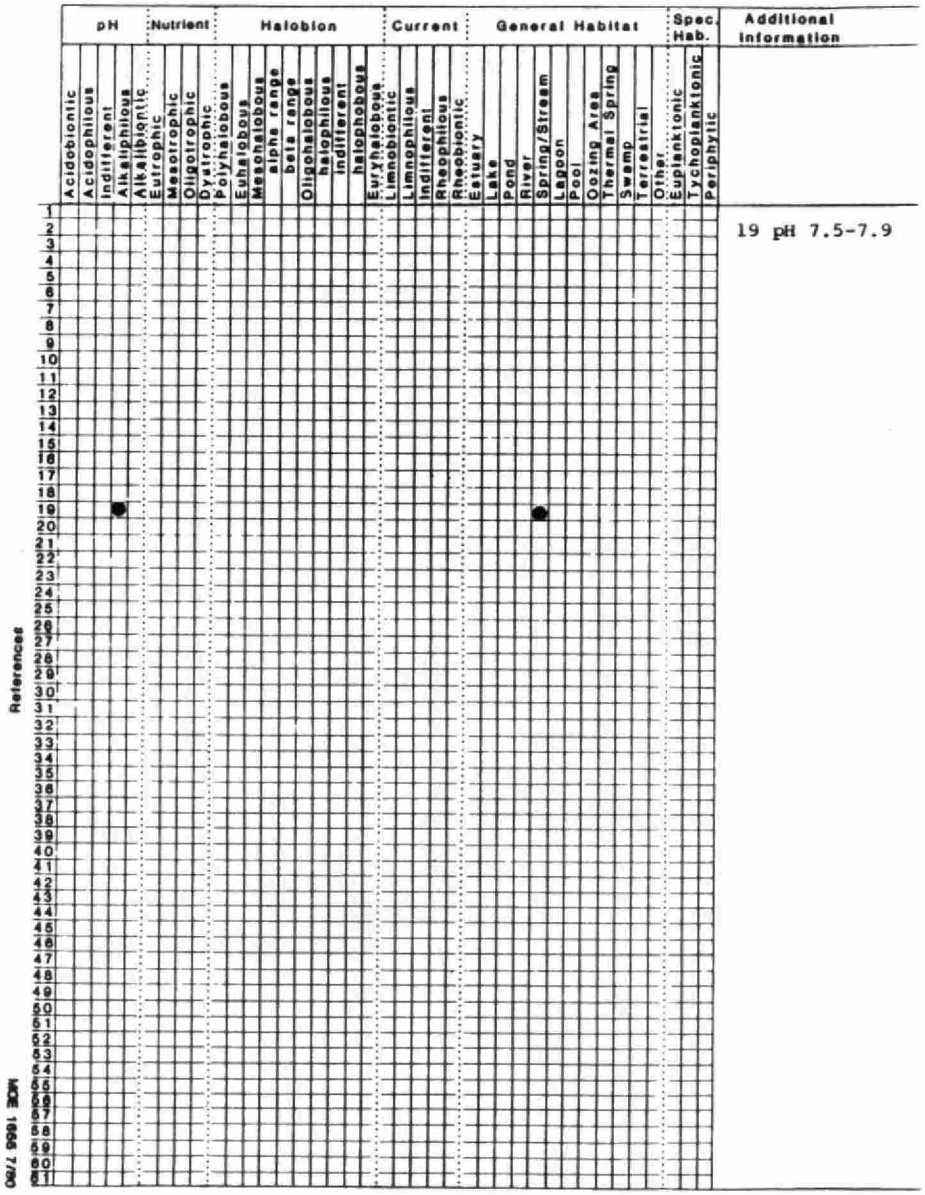


Additional Information

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Ontario

Taxon Cymbella schwabei Foged

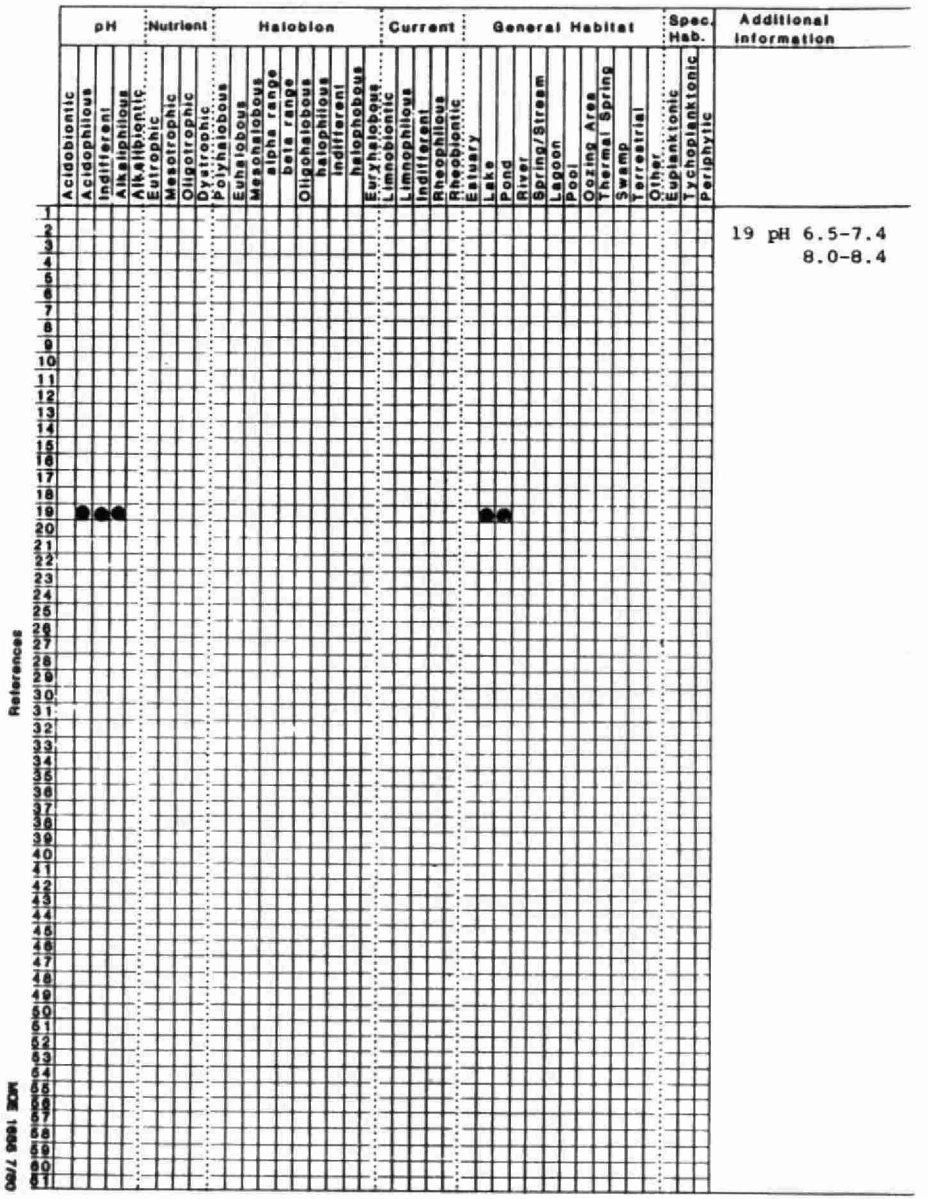
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella sinuata var. arctica Grun.

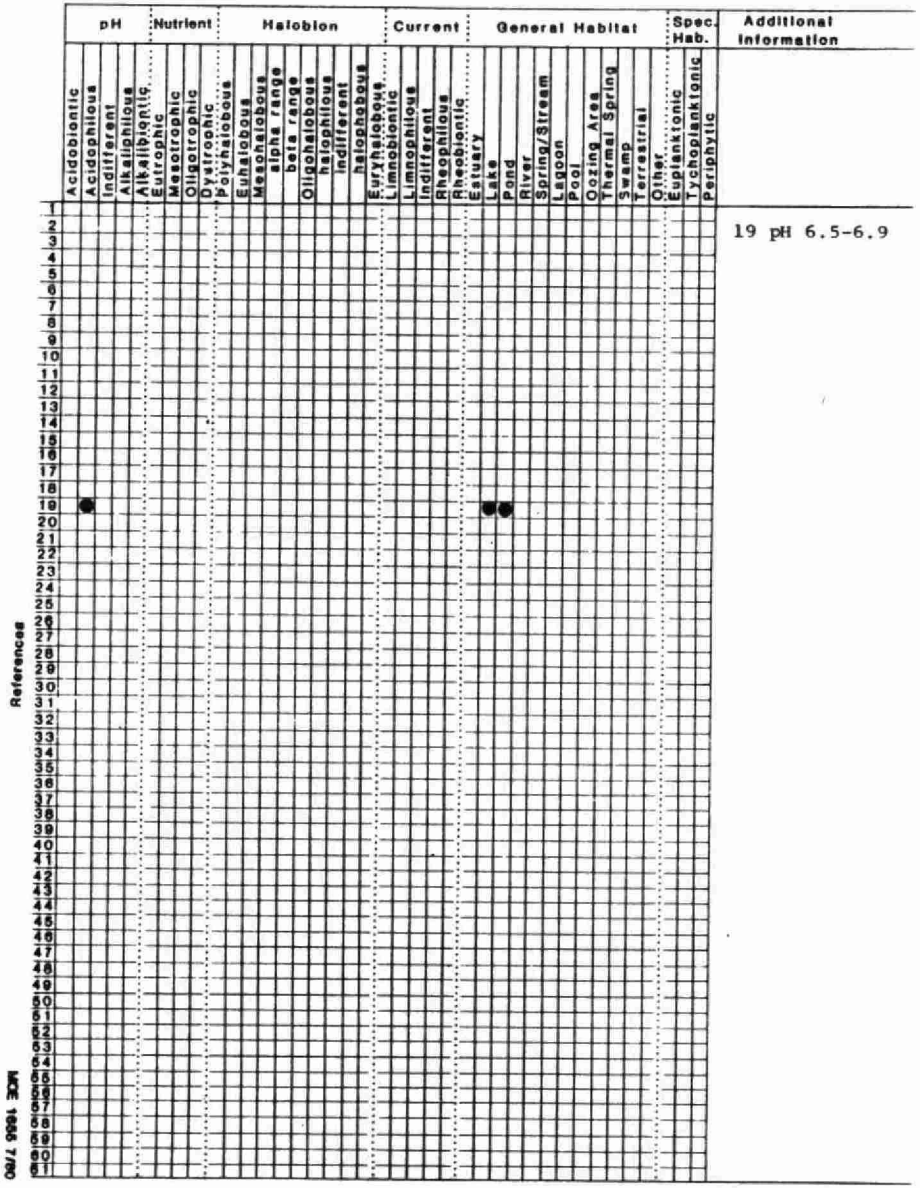
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella sinuata var. capitata Cl.-Eul.

Synonym

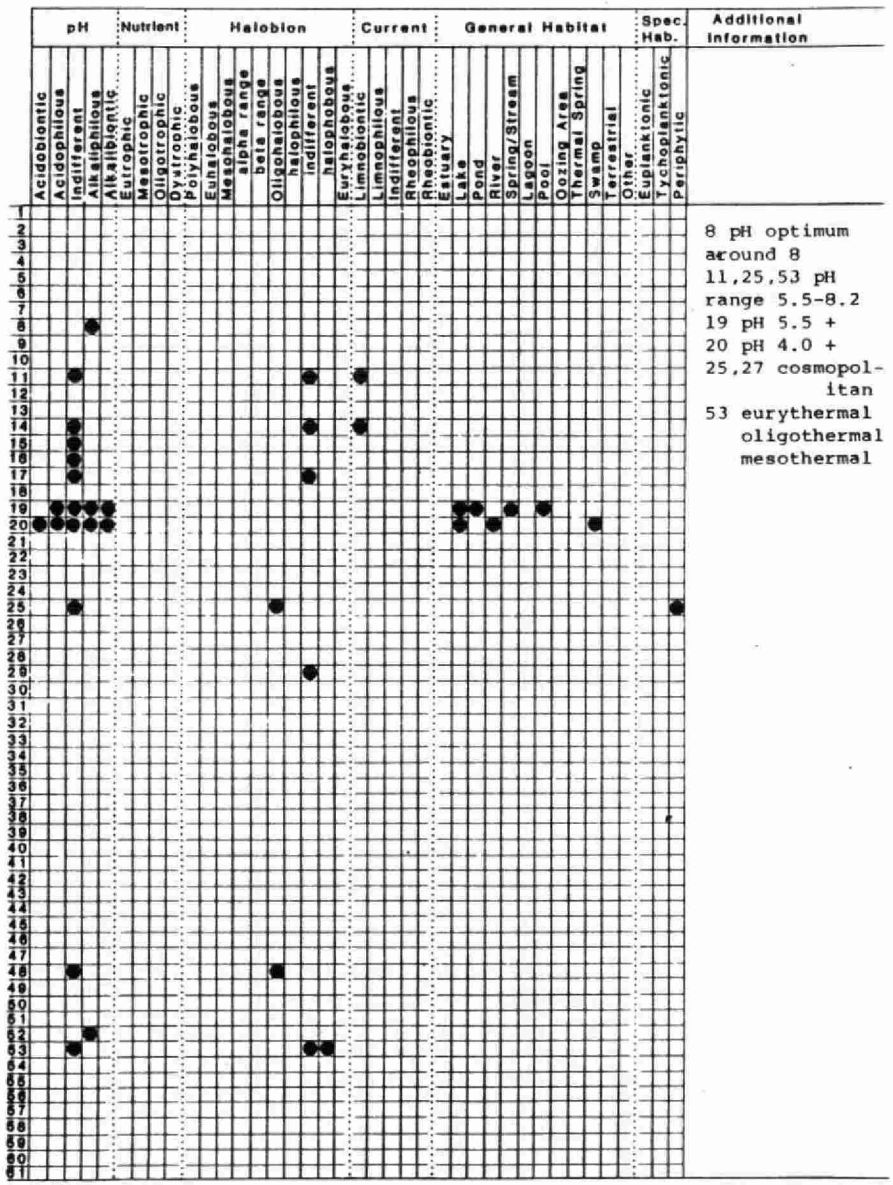


19 pH 6.5-6.9

Ministry of the Environment
Ontario

Taxon Cymbella sinuata Greg. var. sinuata

Synonym Cymbella curta A. S.

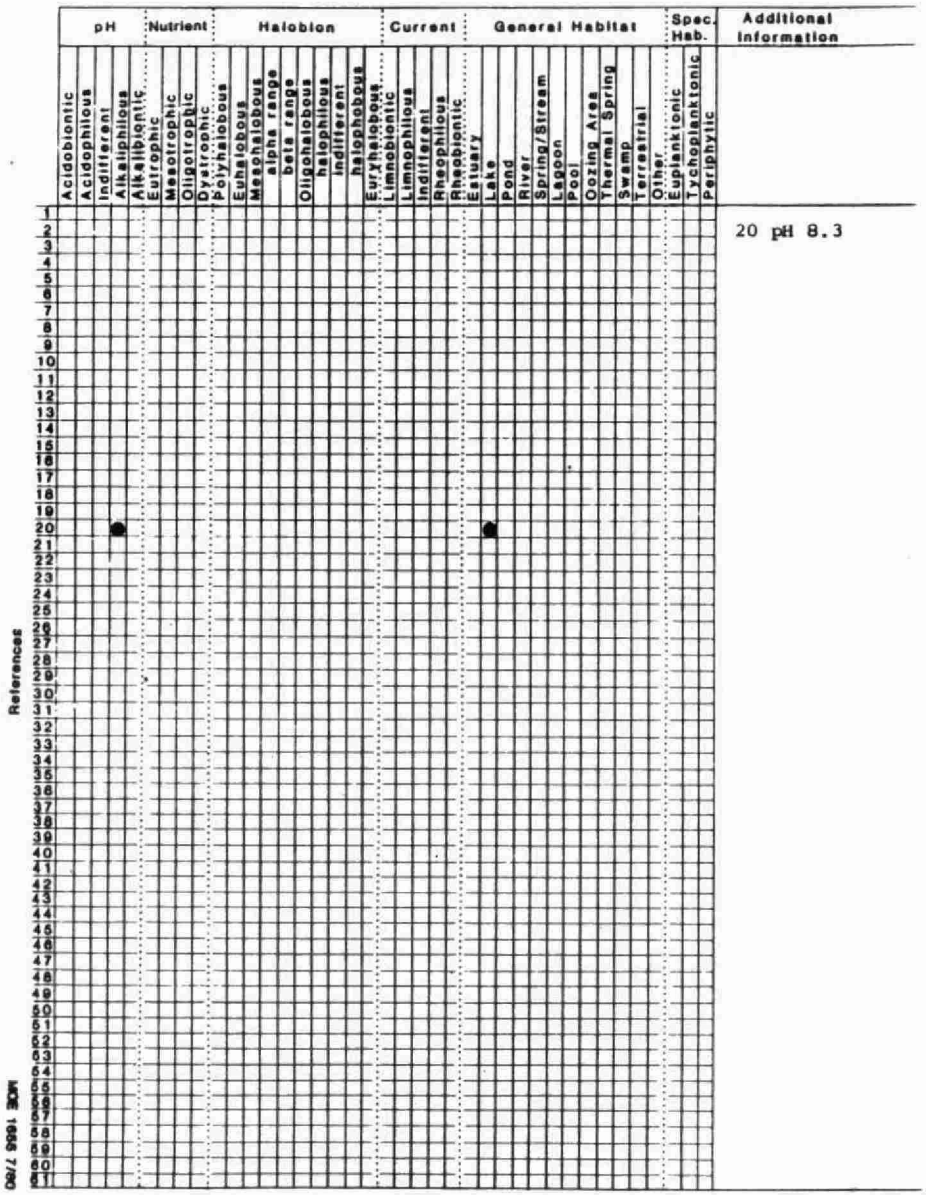


8 pH optimum around 8
11,25,53 pH range 5.5-8.2
19 pH 5.5 +
20 pH 4.0 +
25,27 cosmopolitan
53 eurythermal oligothermal mesothermal

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Ontario

Taxon Cymbella sinuata f. antiqua (Grun.) Reim.

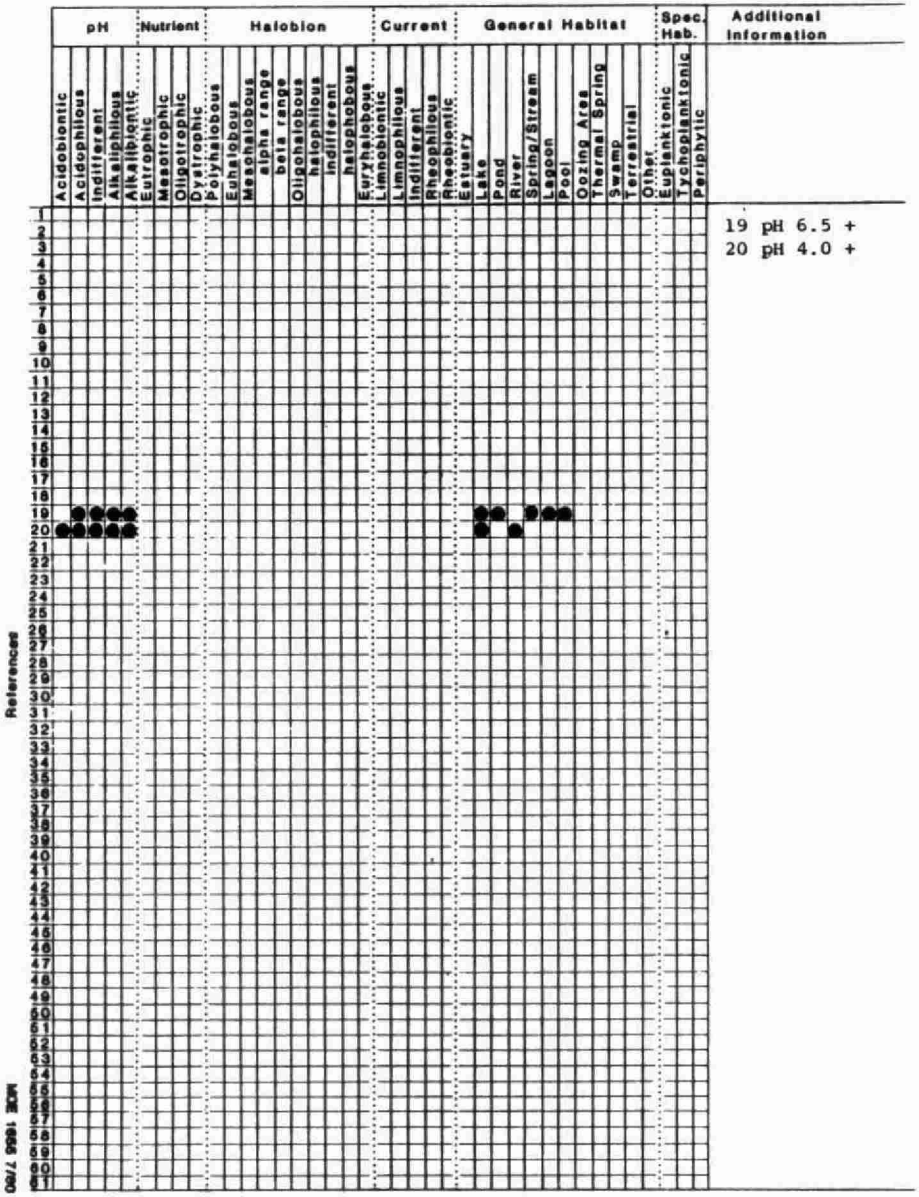
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella sinuata f. ovata Hust.

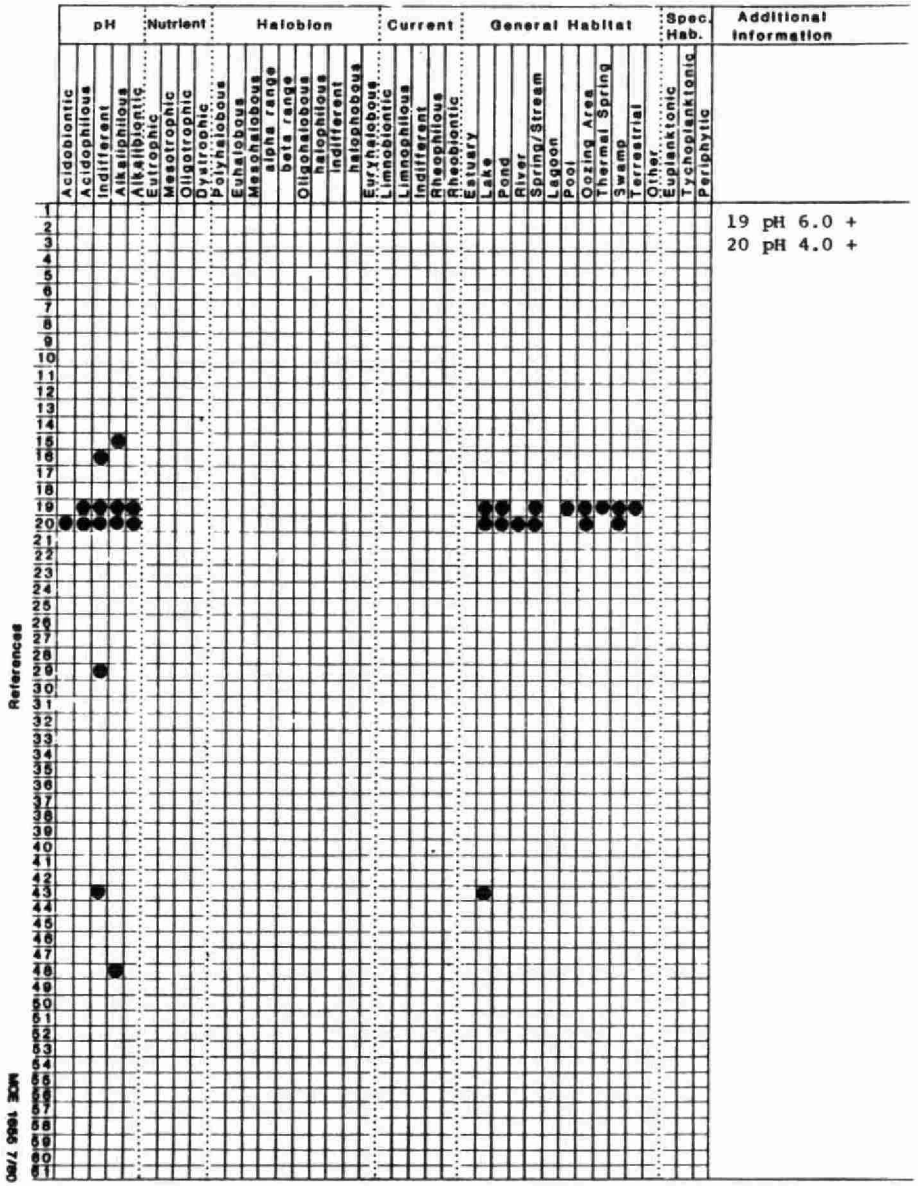
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella subaequalis f. krasskei (Foged) Reim.

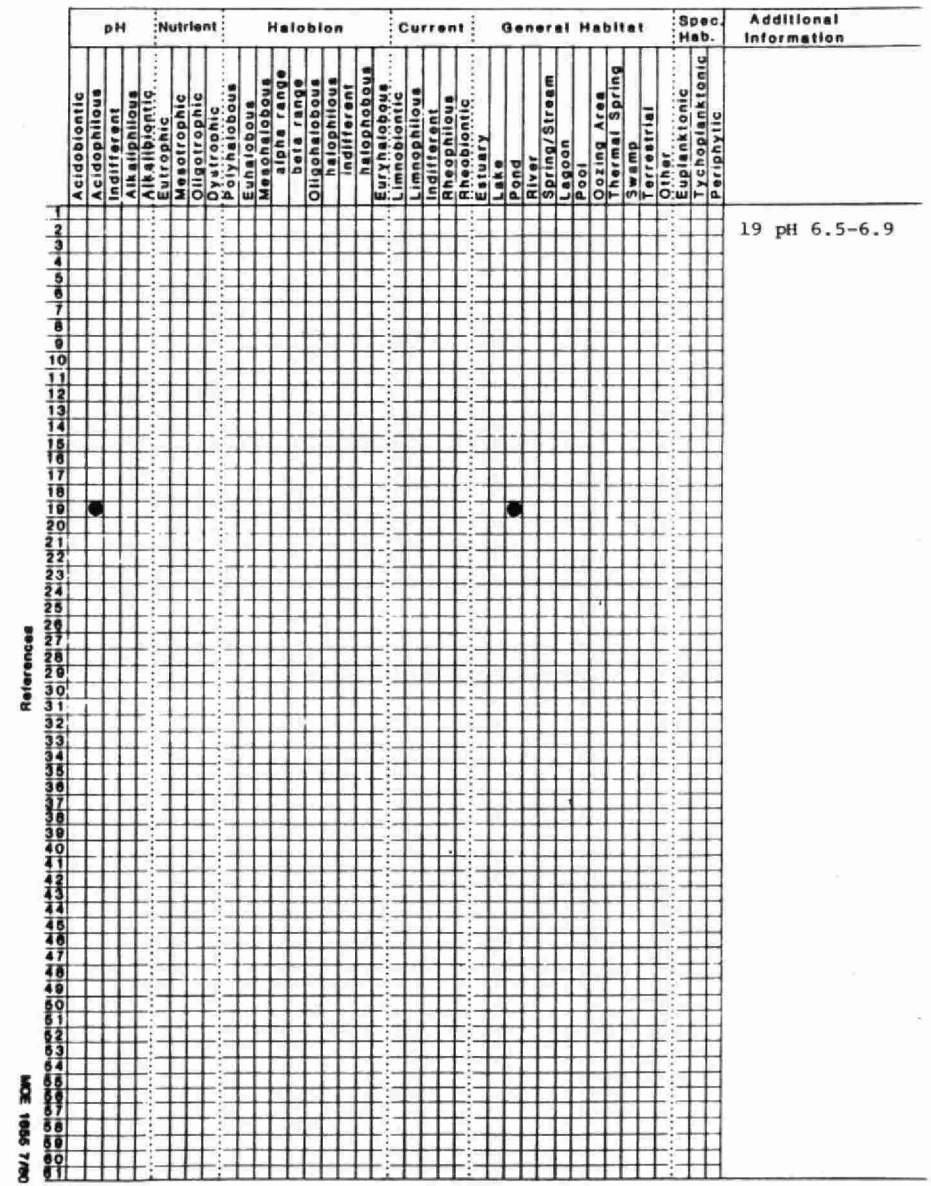
Synonym Cymbella obtusa f. krasskei Foged



Ministry of the Environment
Ontario

Taxon Cymbella suecica Cl.-Eul.

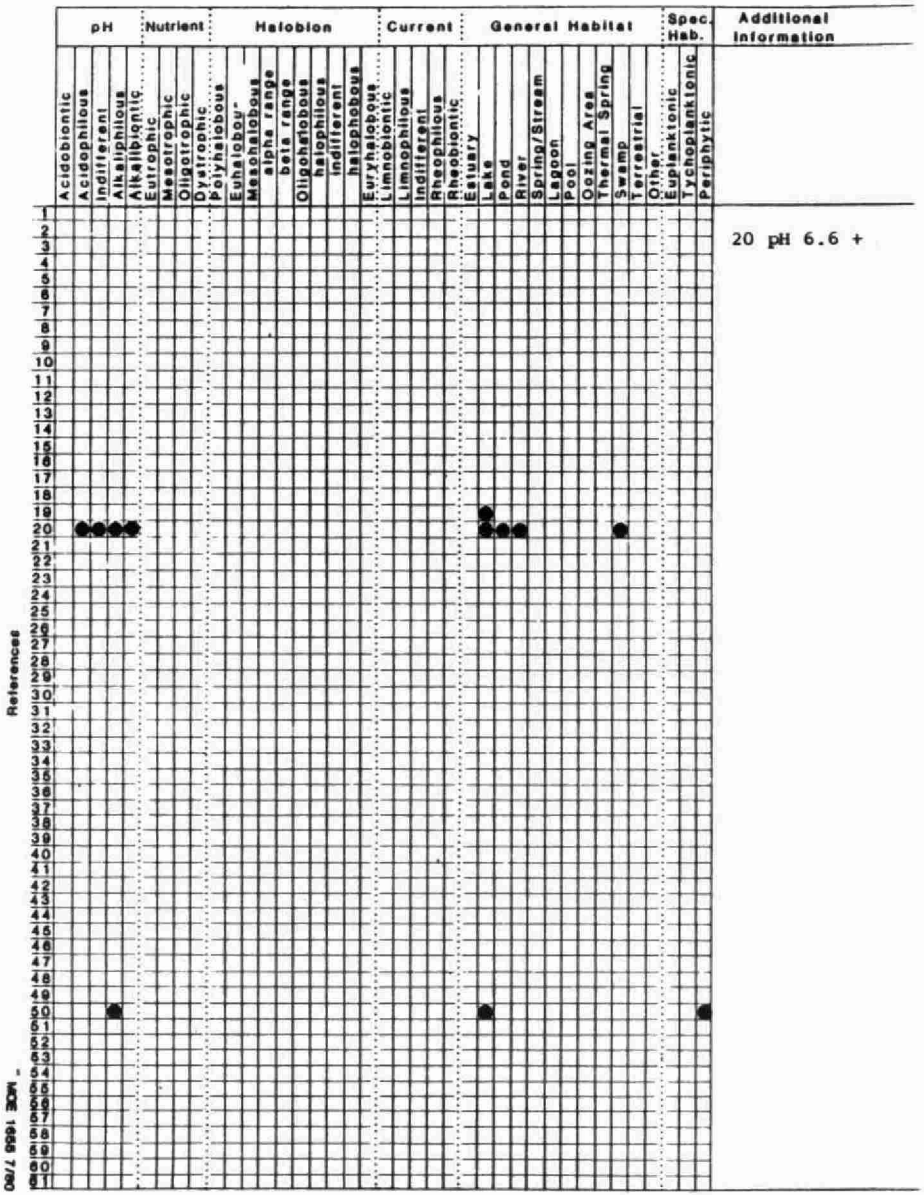
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella thumensis (A. Mayer) Hust.

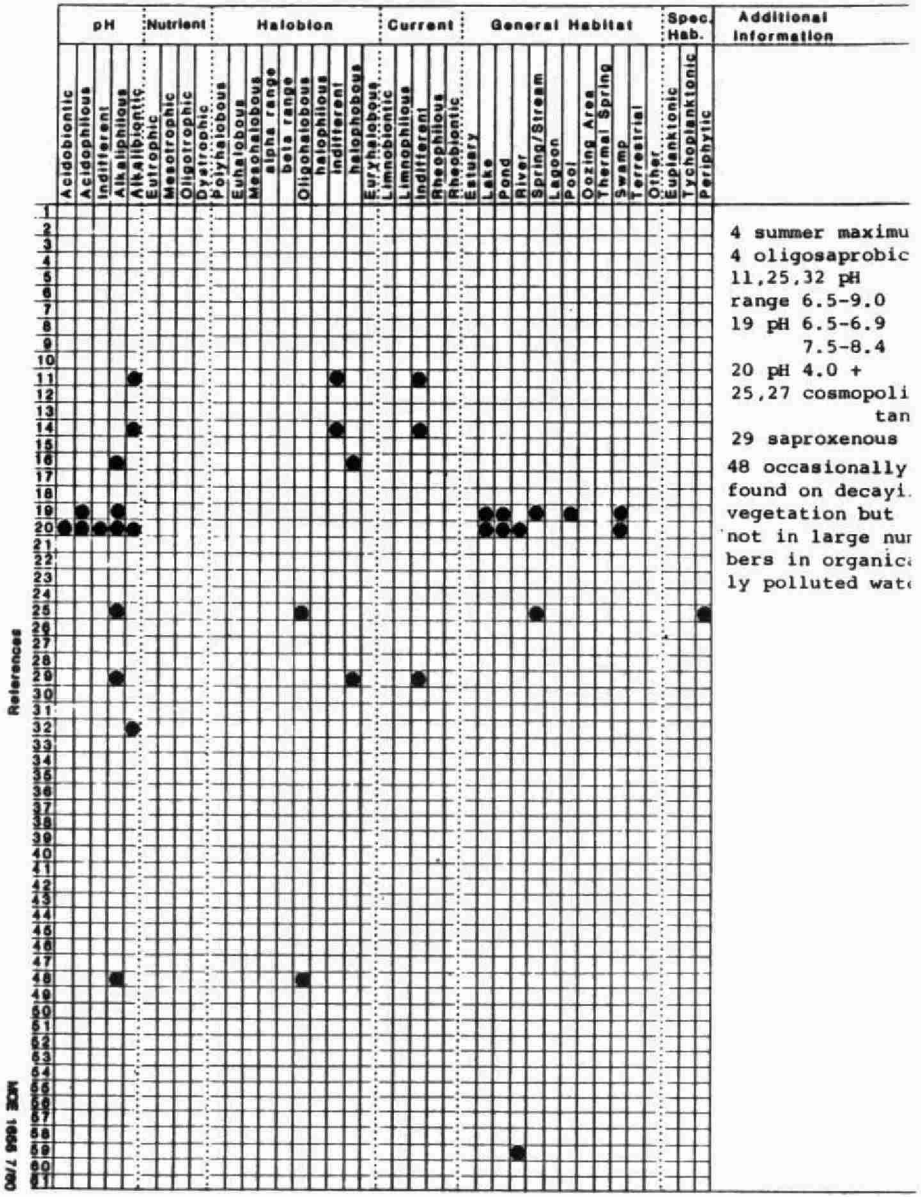
Synonym



Ministry of the Environment
Ontario

Taxon Cymbella tumida (Breb.ex Kutz.) V.H.

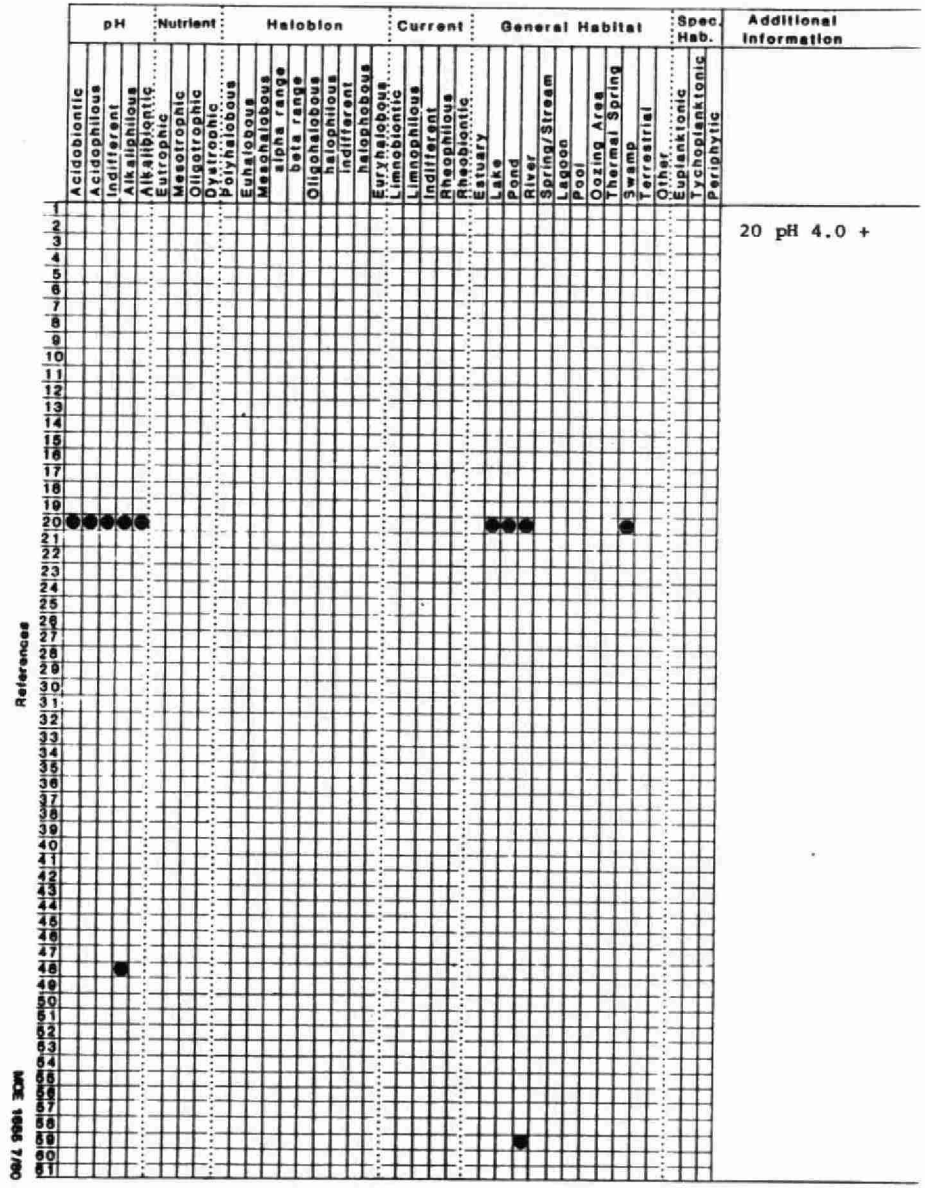
Synonym



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Ontario

Taxon Cymbella tumidula Grun. ex A.S.

Synonym

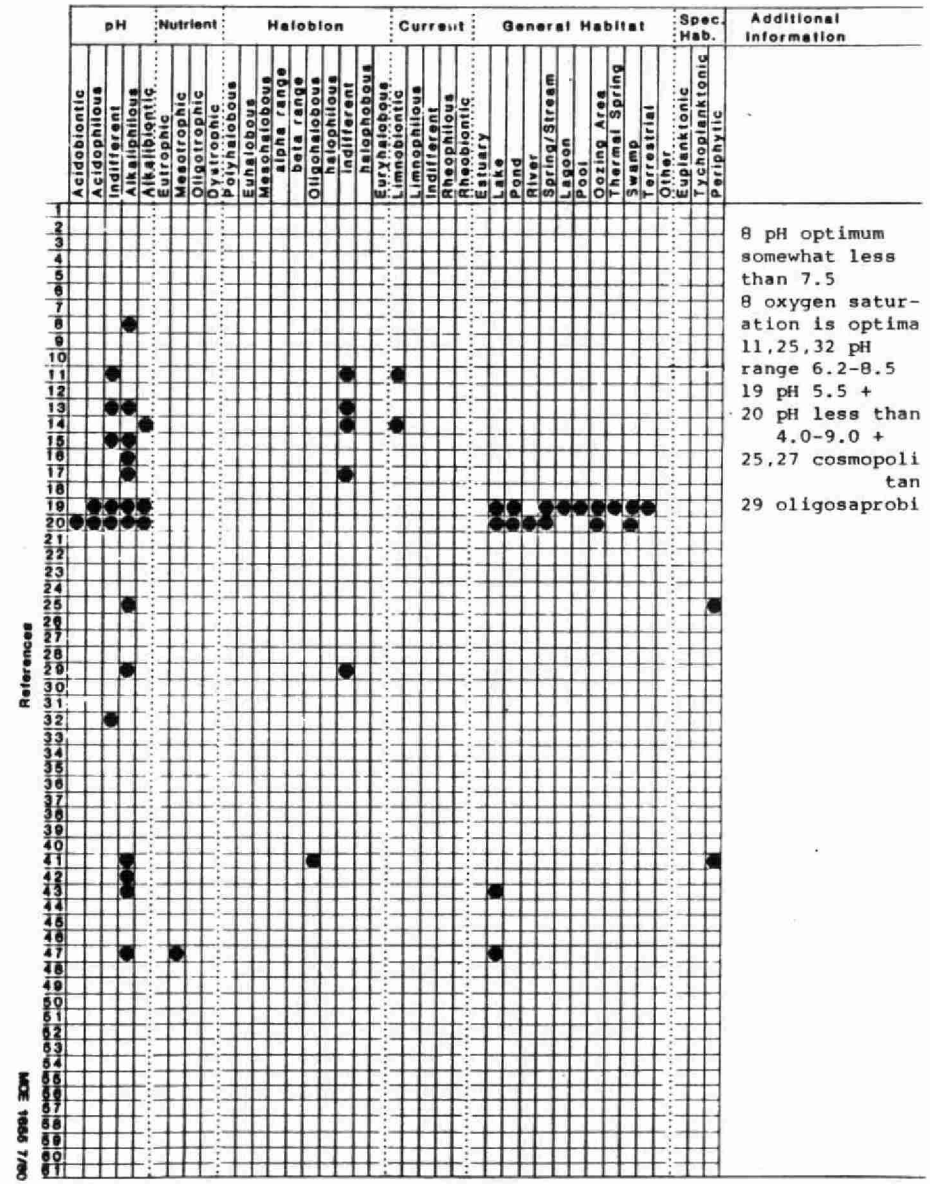


20 pH 4.0 +

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Taxon Cymbella turgida Greg.

Synonym



8 pH optimum somewhat less than 7.5
8 oxygen saturation is optima
11,25,32 pH range 6.2-8.5
19 pH 5.5 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 oligosaprobi

Ministry of the Environment
Ontario

Taxon Cymbella ulensis Cl.-Eul.

Synonym

References	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Cymbella ventricosa var. groenlandica Foged

Synonym

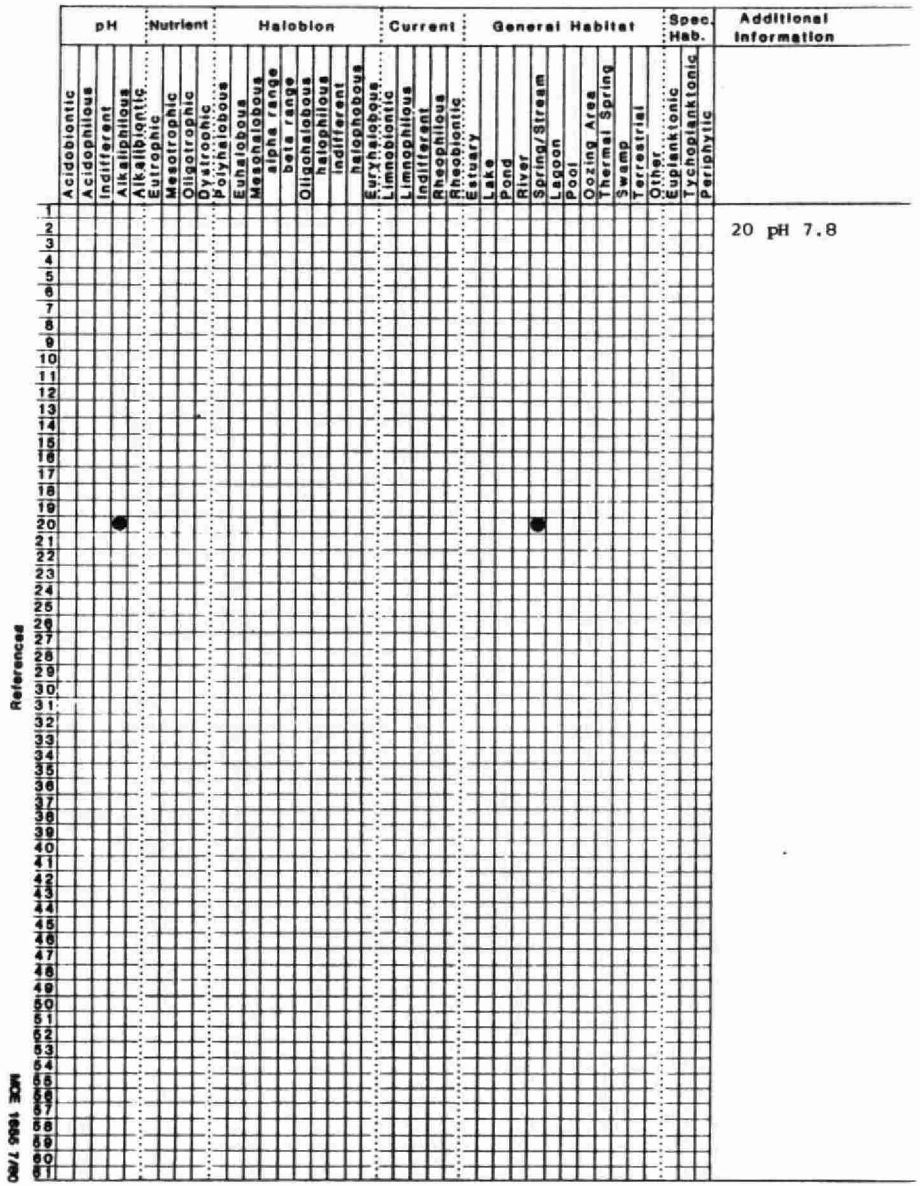
References	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Cymbella ventricosa var. simicircularis (Lager.) Ross

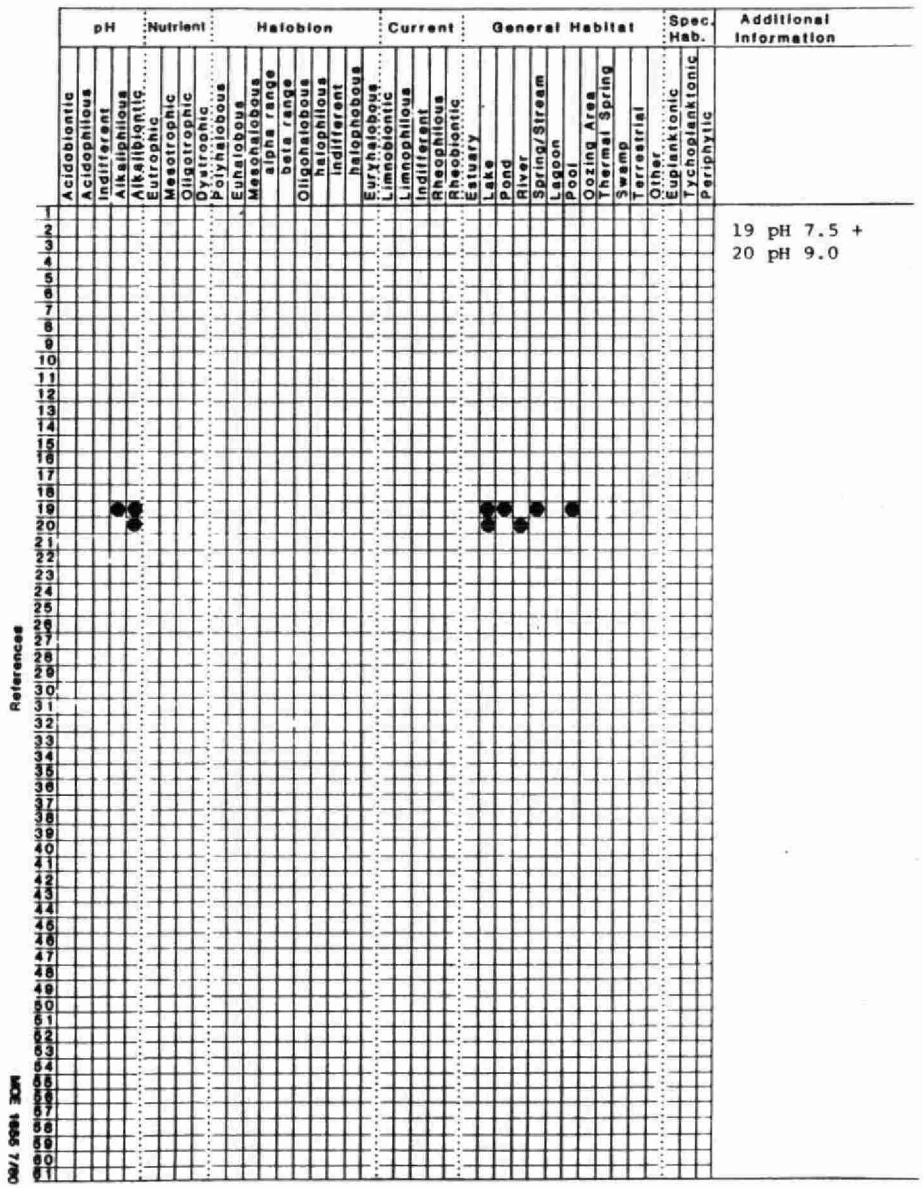
Synonym



Ministry of the Environment
Ontario

Taxon Cymbellonitzschia diluviana Hust.

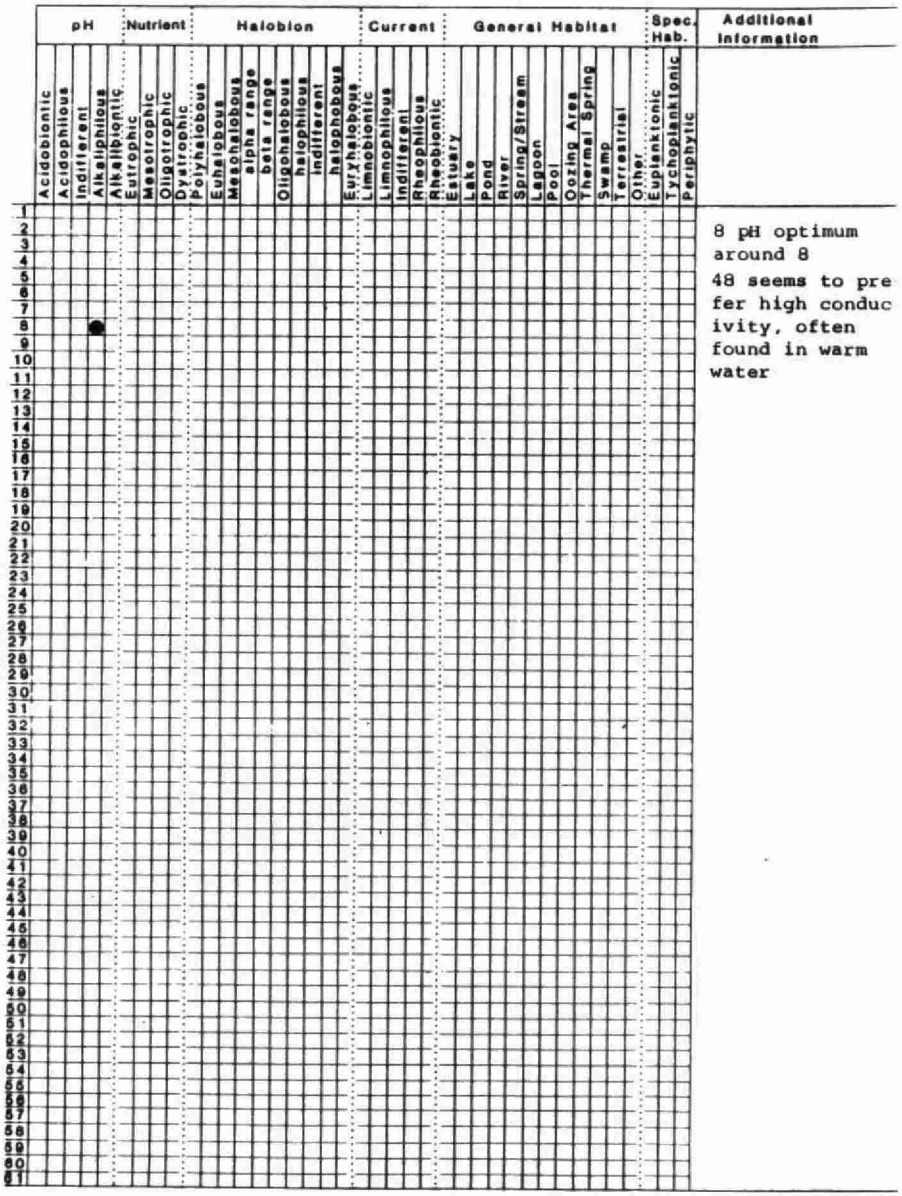
Synonym



Ministry of the Environment
Ontario

Taxon Denticula elegans Kutz.

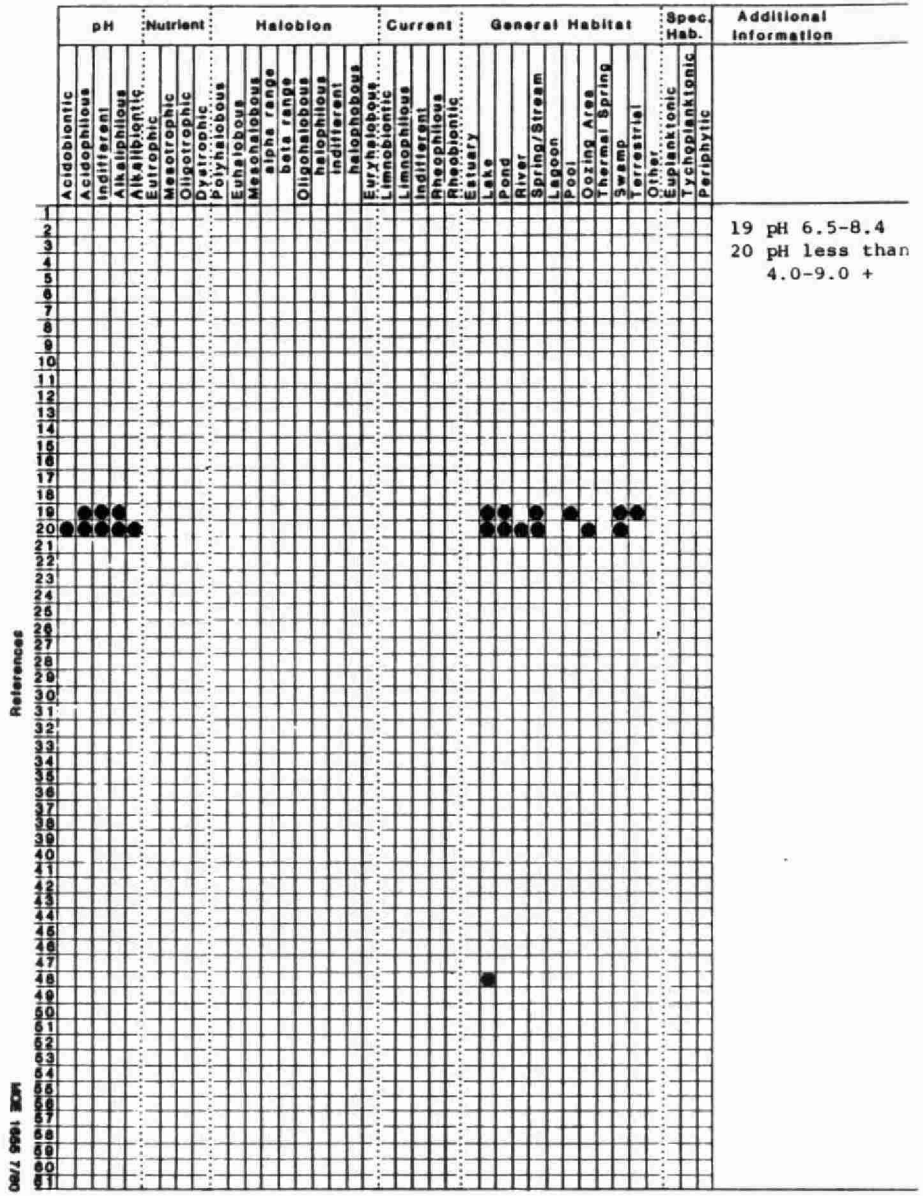
Synonym



Ministry of the Environment
Ontario

Taxon Denticula tenuis var. crassula(Naeg.ex Kutz.) W. & G.S. West

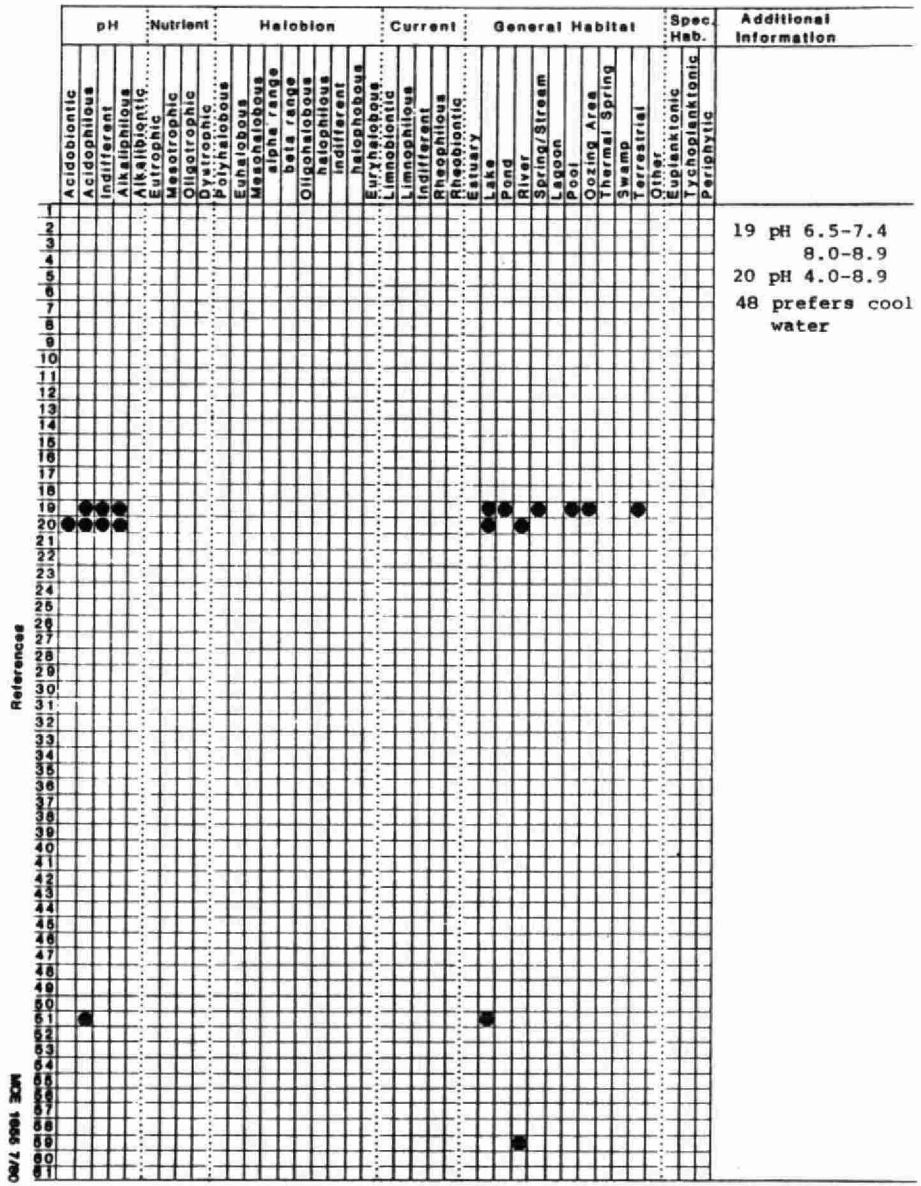
Synonym



Ministry of the Environment
Ontario

Taxon Denticula tenuis Kutz. var. tenuis

Synonym



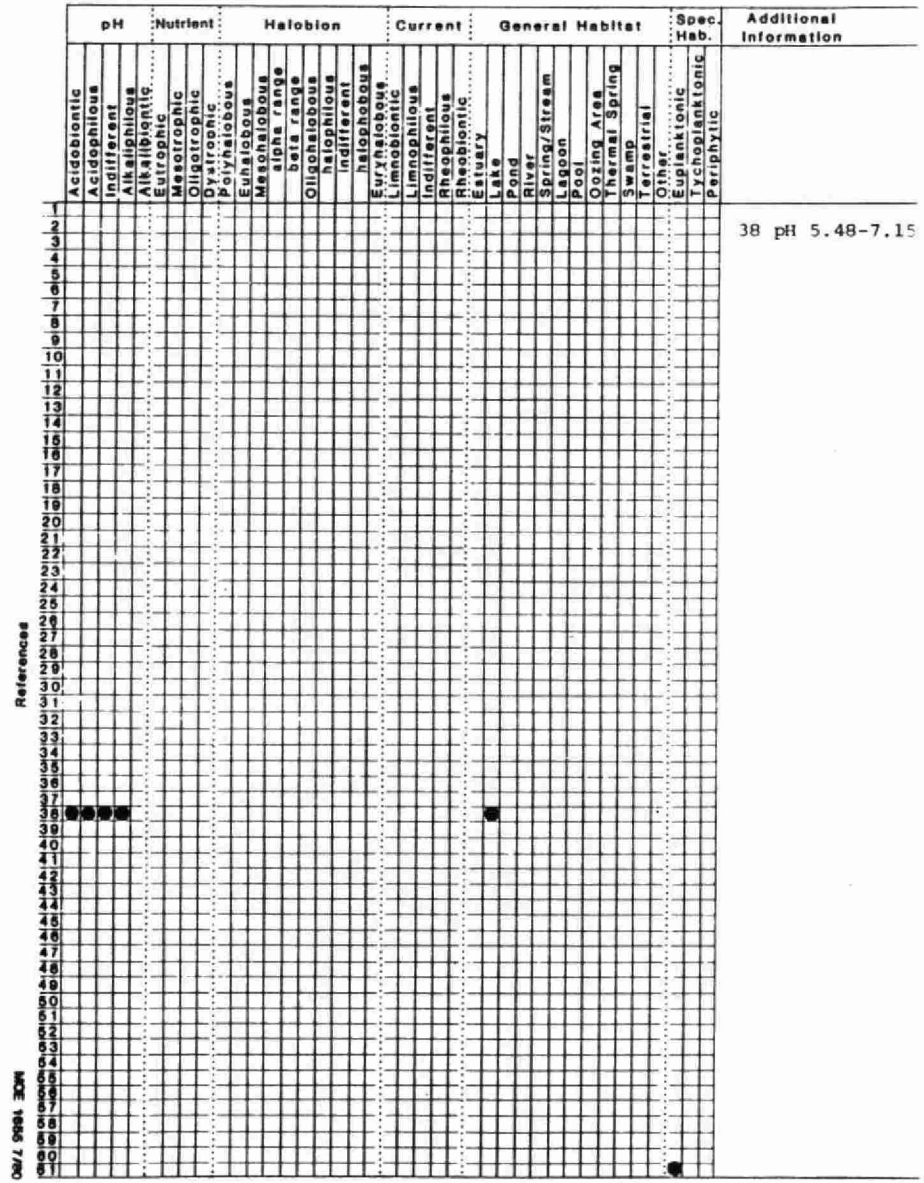
Additional Information

19 pH 6.5-7.4
8.0-8.9
20 pH 4.0-8.9
48 prefers cool water

Ministry of the Environment
Ontario

Taxon Diatoma sp.

Synonym



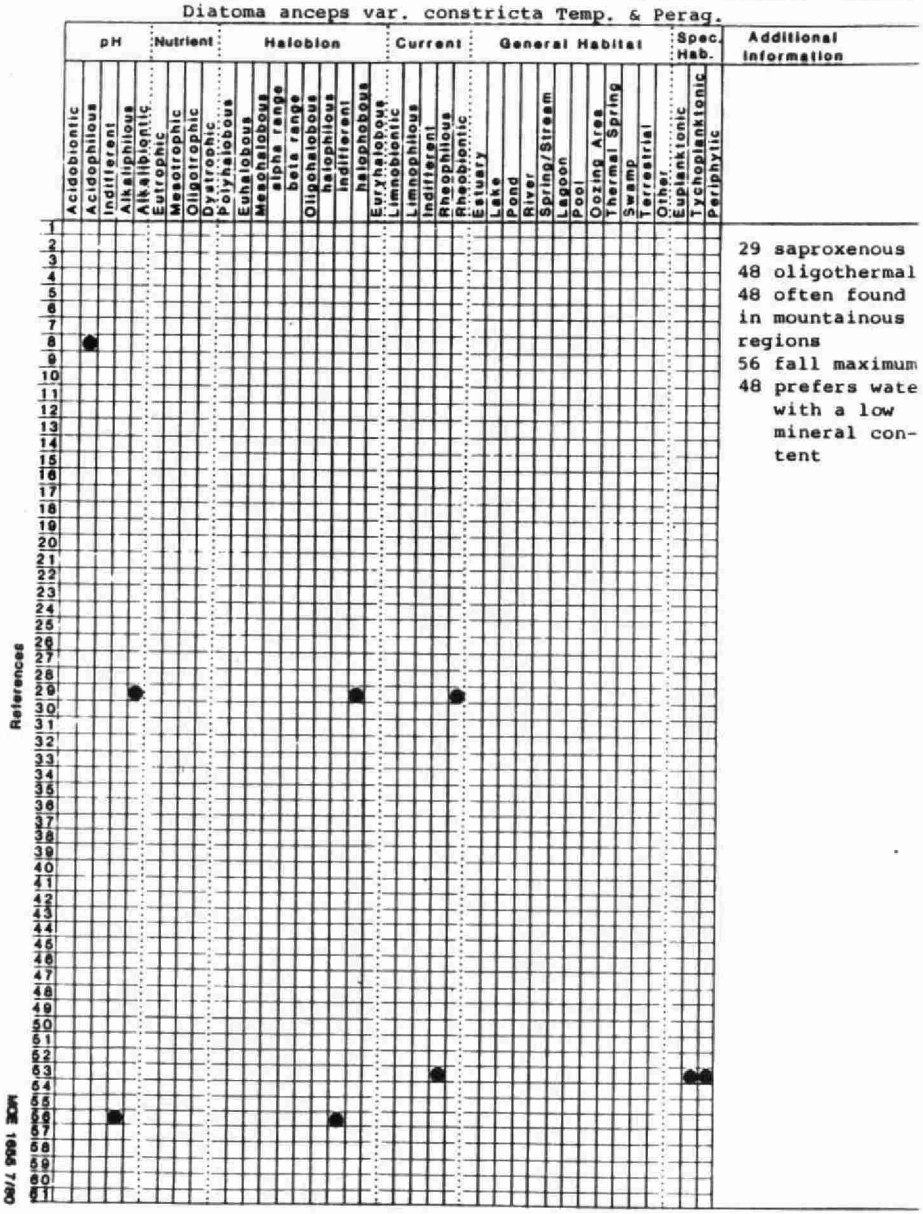
Additional Information

38 pH 5.48-7.15

Taxon Diatoma anceps (Ehr.) Kirch.

Synonym Diatoma anceps var. capitata M. Perag.

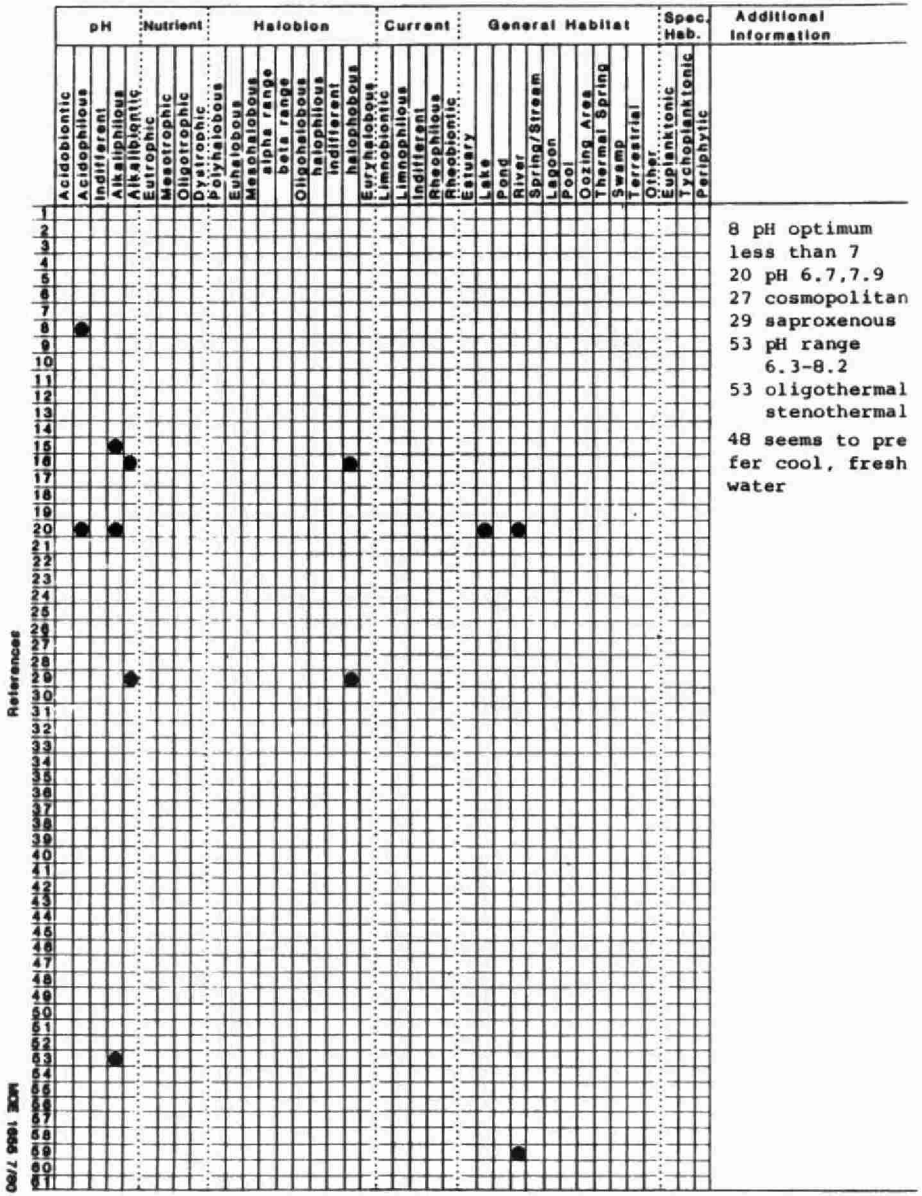
Diatoma anceps var. constricta Temp. & Perag.



29 saproxenous
48 oligothermal
48 often found in mountainous regions
56 fall maximum
48 prefers wate with a low mineral content

Taxon Diatoma hiemale (Roth.) Heib. var. hiemale

Synonym Diatoma hyemale (Roth) Heib.

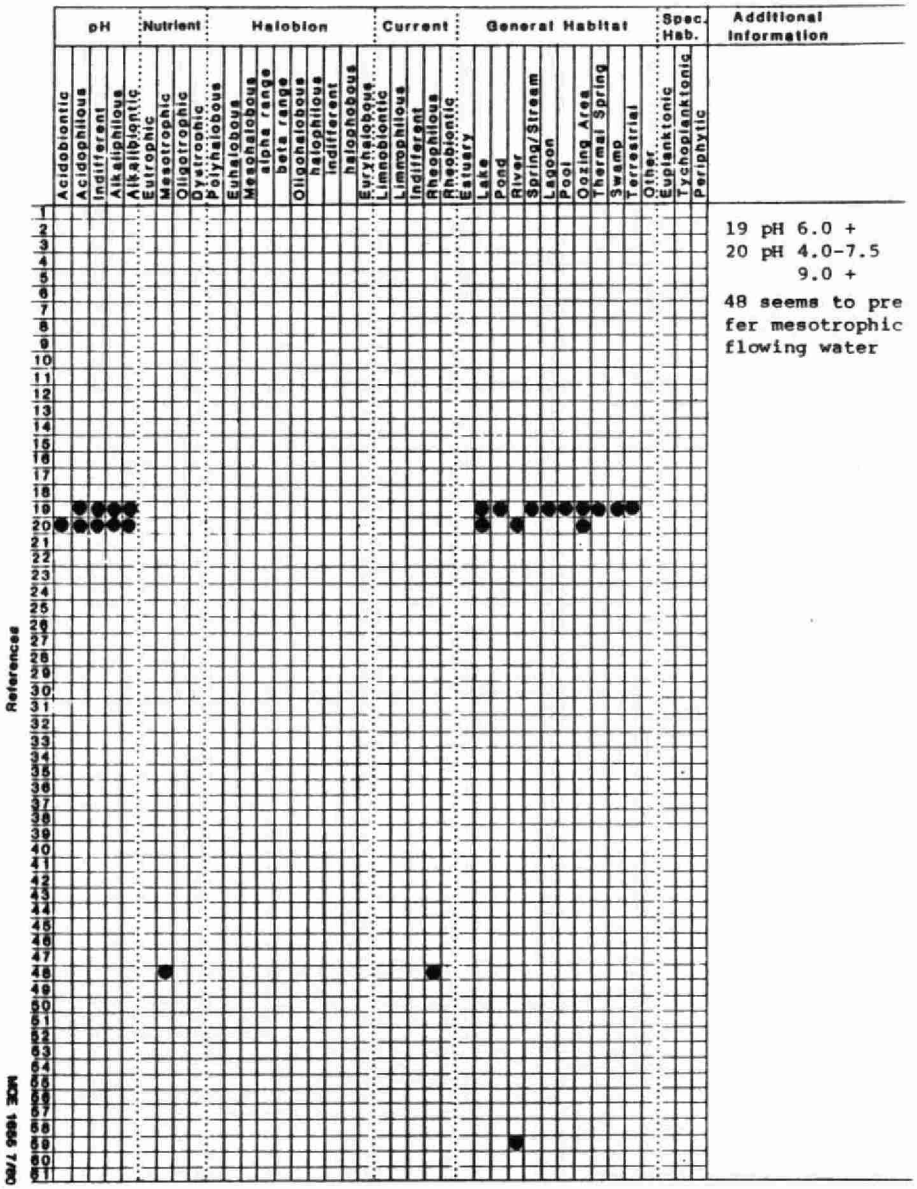


8 pH optimum less than 7
20 pH 6.7,7.9
27 cosmopolitan
29 saproxenous
53 pH range 6.3-8.2
53 oligothermal stenothermal
48 seems to pre fer cool, fresh water

Ministry of the Environment
Ontario

Taxon Diatoma hiemale var. mesodon (Ehr.) Grun.

Synonym



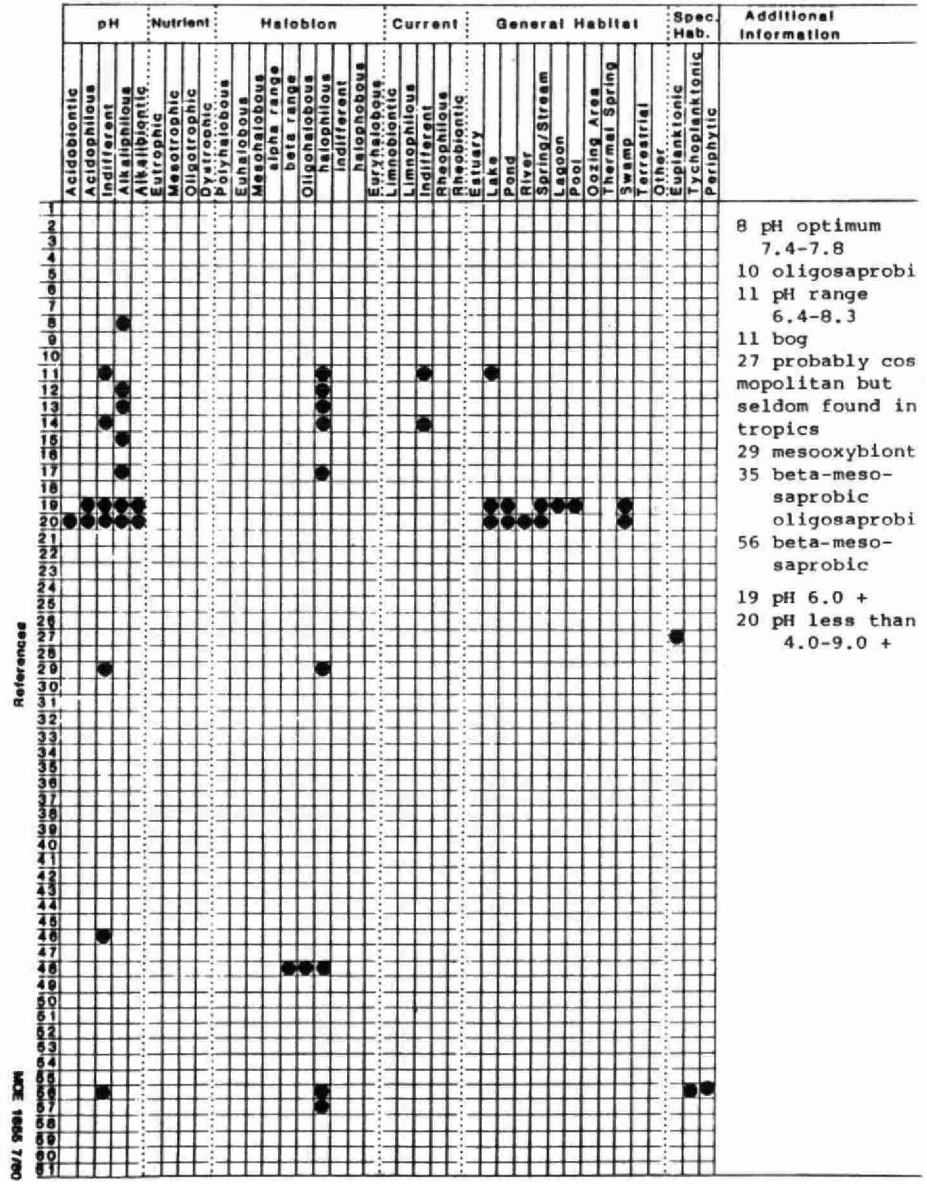
19 pH 6.0 +
20 pH 4.0-7.5
9.0 +

48 seems to prefer mesotrophic flowing water

Ministry of the Environment
Ontario

Taxon Diatoma tenue var. elongatum Lyng.

Synonym Diatoma elongatum (Lyng.) Ag.



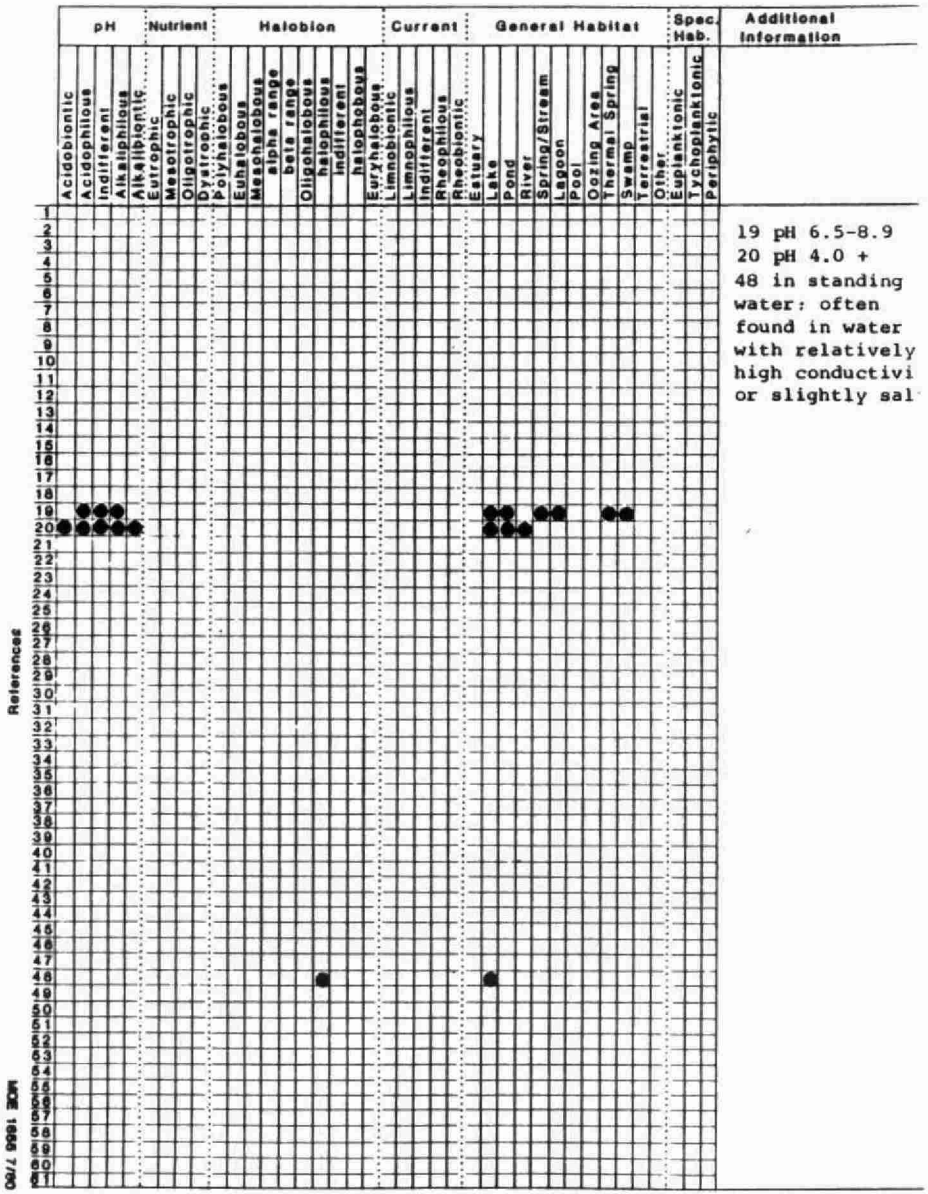
8 pH optimum 7.4-7.8
10 oligosaprobi
11 pH range 6.4-8.3
11 bog
27 probably cosmopolitan but seldom found in tropics
29 mesooxybiont
35 beta-meso-saprobic oligosaprobi
56 beta-meso-saprobic

19 pH 6.0 +
20 pH less than 4.0-9.0 +

Ministry of the Environment
Ontario

Taxon Diatoma tenue Ag. var. tenue

Synonym Diatoma elongatum var. tenue (Ag.) V. H.

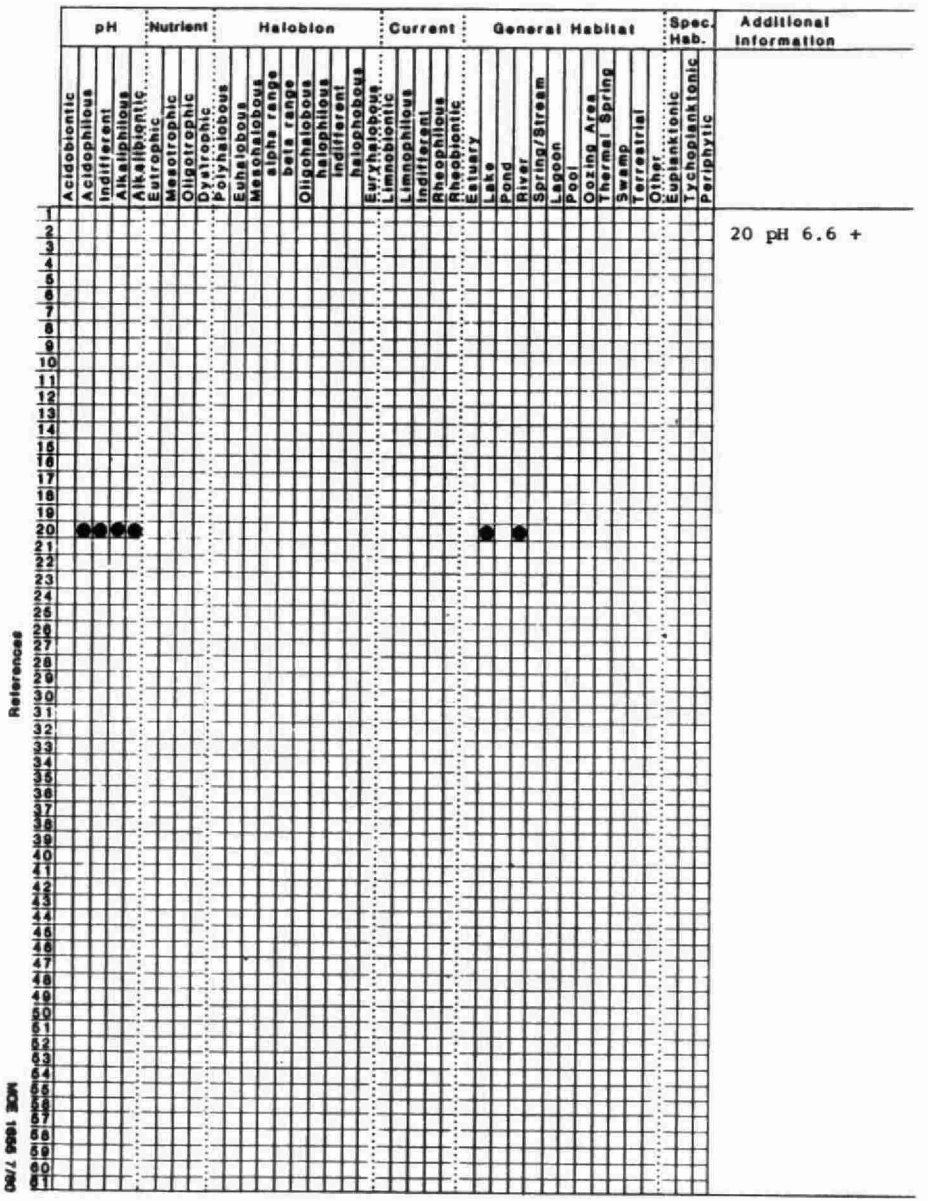


19 pH 6.5-8.9
20 pH 4.0 +
48 in standing water: often found in water with relatively high conductivi or slightly sal

Ministry of the Environment
Ontario

Taxon Diatoma vulgare var. ehrenbergii (Kutz.) Grun.

Synonym



20 pH 6.6 +

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Ontario

Taxon Diatoma vulgare var. linearis V. Heurck

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tycholanktonic	Periphytic	Additional Information
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19 pH 6.5-6.9

48 seems to pre fer cool, flowi water

MOE 1885 7/80

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Ontario

Taxon Diatoma vulgare var. producta Grun.

Synonym

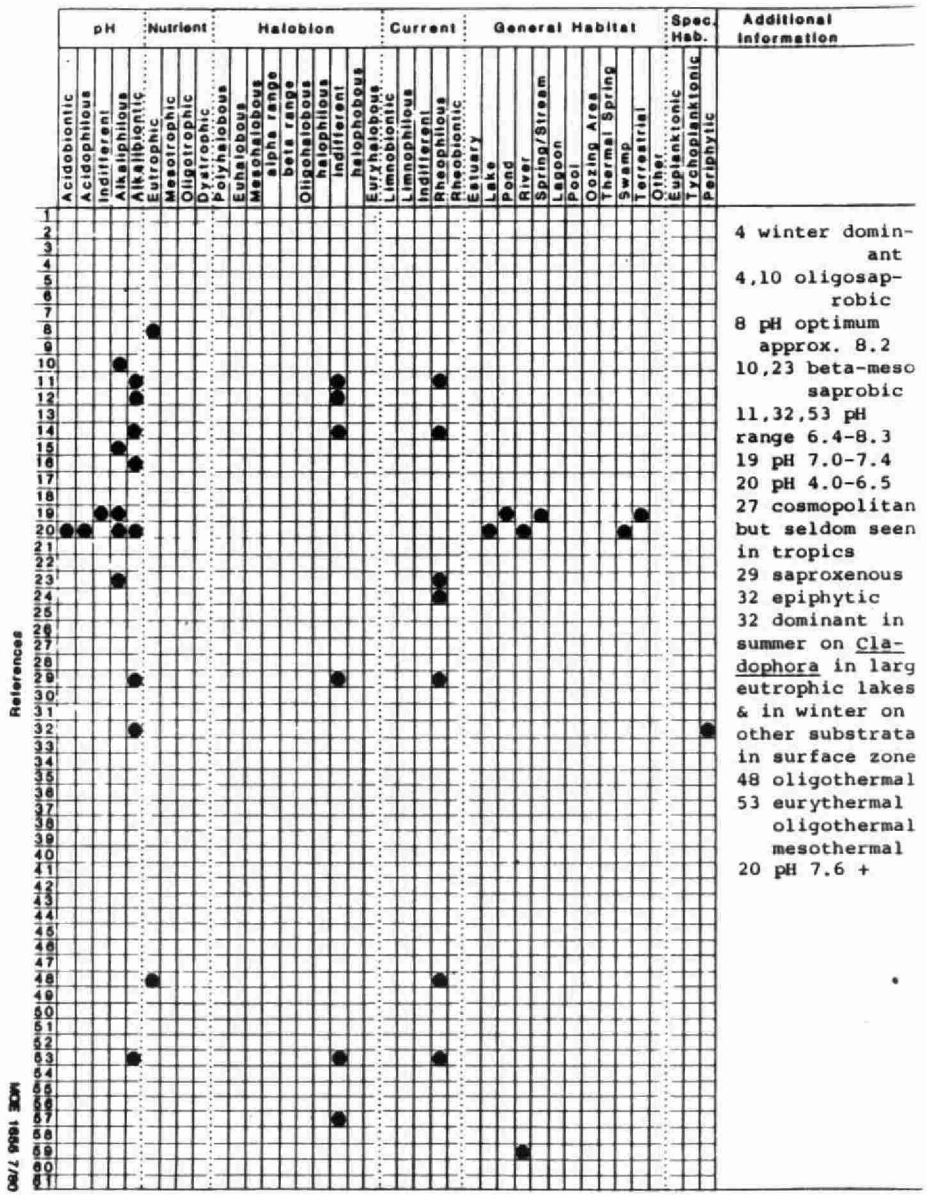
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tycholanktonic	Periphytic	Additional Information
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20 pH 7.6-8.9

MOE 1885 7/80

Taxon Diatoma vulgare Bory var. vulgare

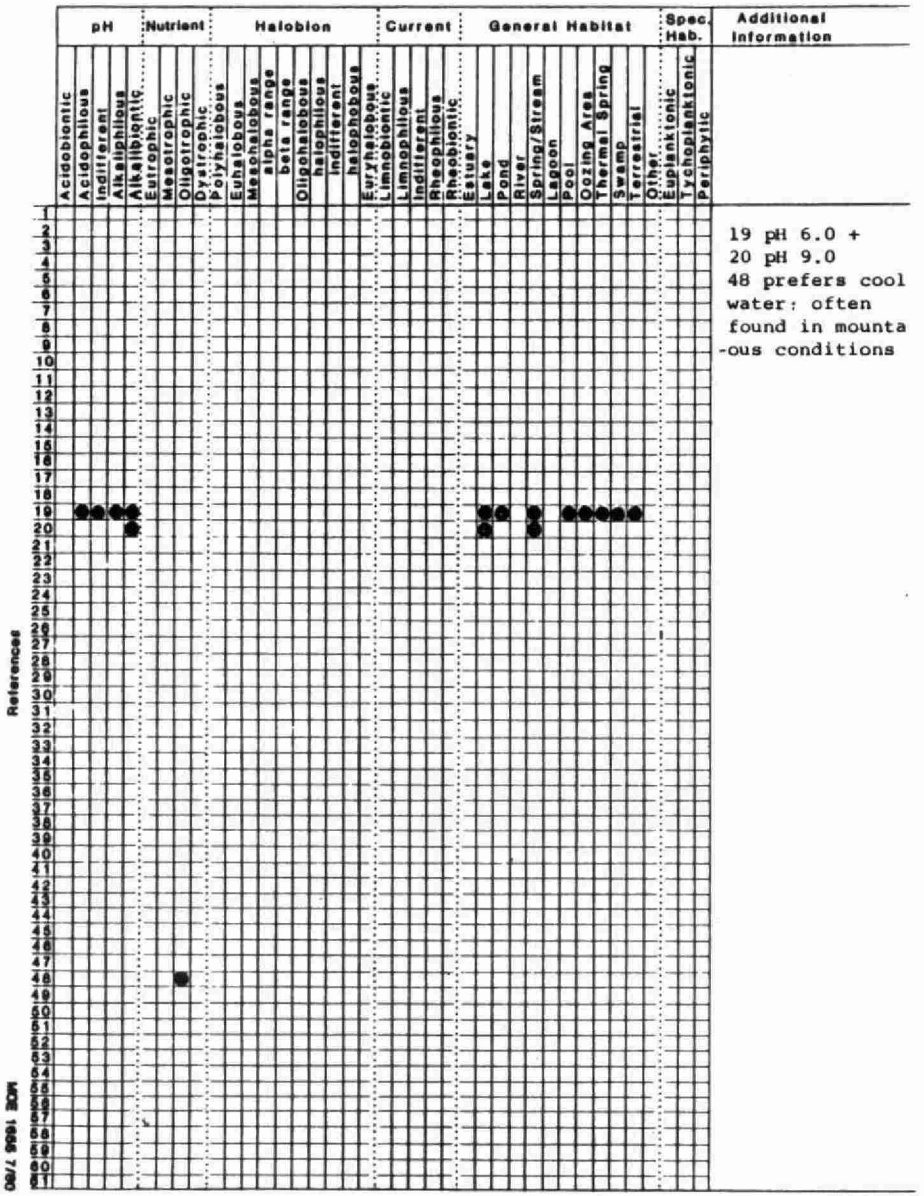
Synonym



4 winter dominant
4,10 oligosaprobic
8 pH optimum approx. 8.2
10,23 beta-meso saprobic
11,32,53 pH range 6.4-8.3
19 pH 7.0-7.4
20 pH 4.0-6.5
27 cosmopolitan but seldom seen in tropics
29 saproxenous
32 epiphytic
32 dominant in summer on Cladophora in larg eutrophic lakes & in winter on other substrata in surface zone
48 oligothermal
53 eurythermal oligothermal mesothermal
20 pH 7.6 +

Taxon Diatomella balfouriana Grev.

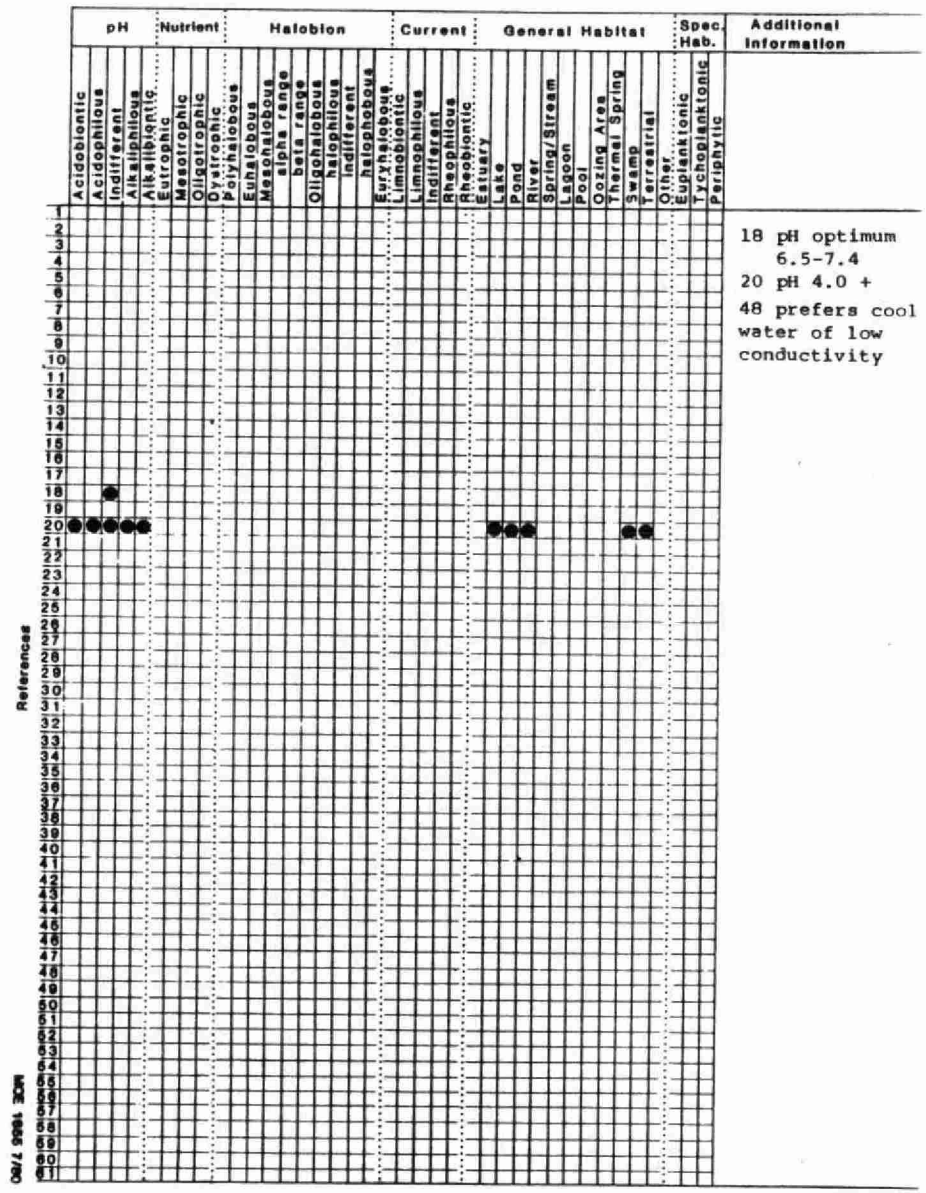
Synonym



19 pH 6.0 +
20 pH 9.0
48 prefers cool water: often found in mountainous conditions

Taxon Didymosphenia geminata (Lyng.) M. Schmidt

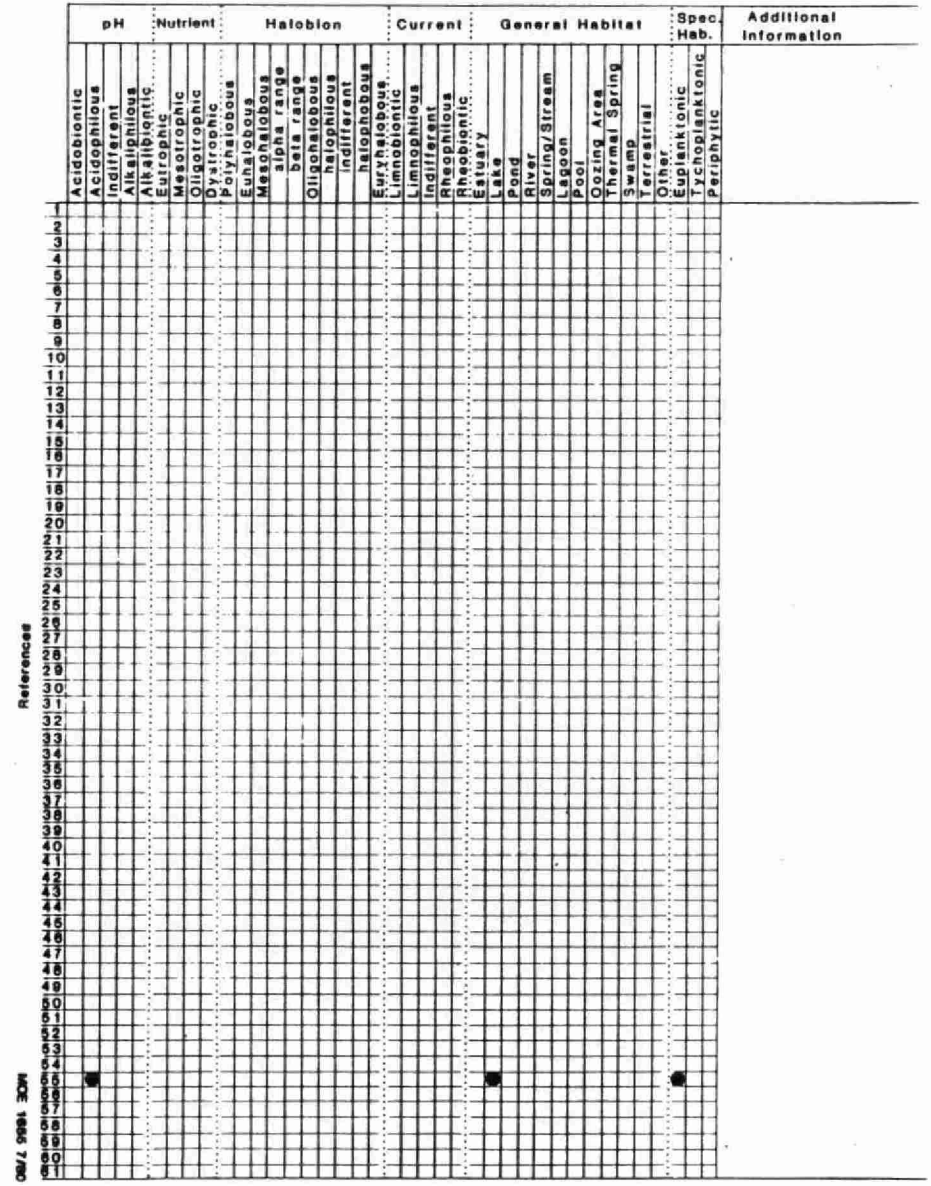
Synonym



18 pH optimum 6.5-7.4
20 pH 4.0 +
48 prefers cool water of low conductivity

Taxon Diploneis sp.

Synonym



Ministry of the Environment
Ontario

Taxon Diploneis boldtiana Cl.

Synonym

	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20 pH 6.6-8.9

MOE 1855 7/80

Ministry of the Environment
Ontario

Taxon Diploneis domblitensis (Grun.) Cl. var. domblitensis

Synonym

	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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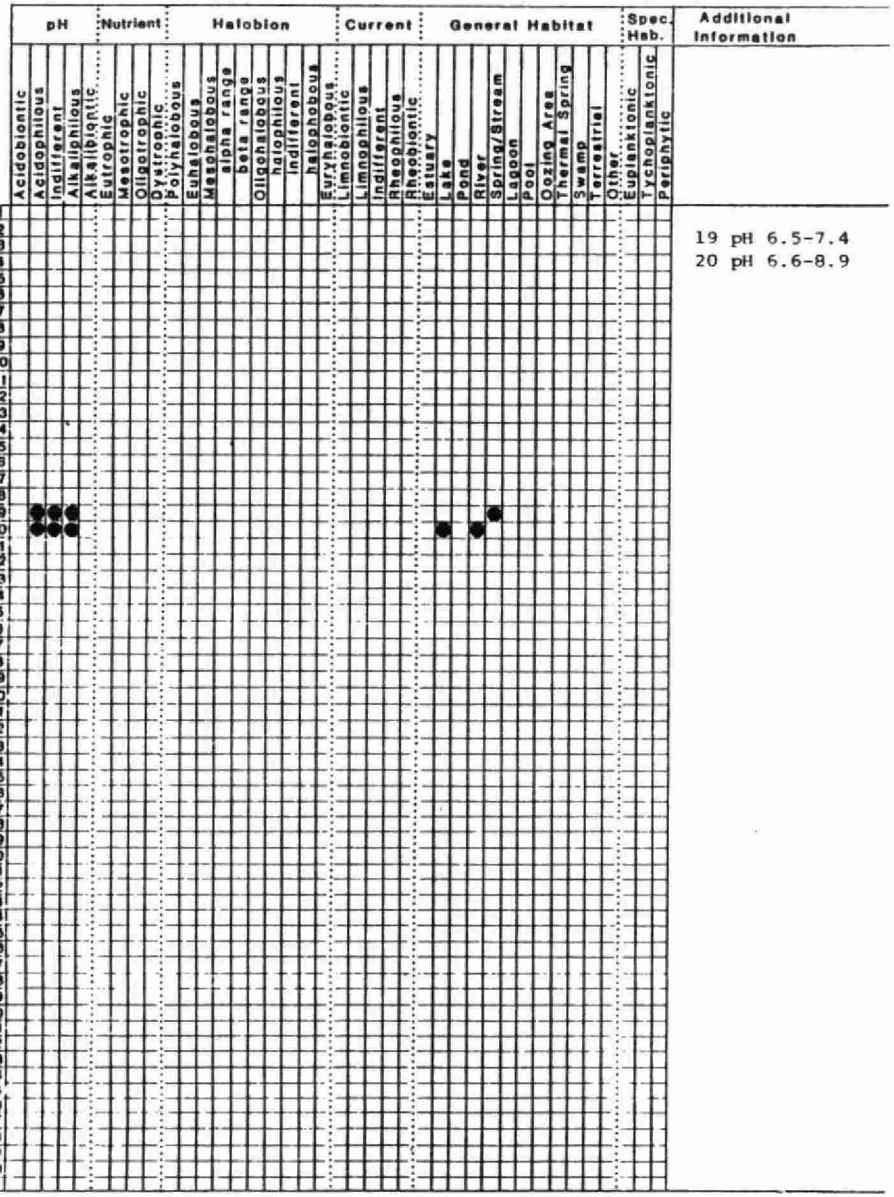
20 pH 6.6-8.9

MOE 1855 7/80

Ministry of the Environment
Ontario

Taxon Diploneis domblitensis var. subconstricta Cl.

Synonym

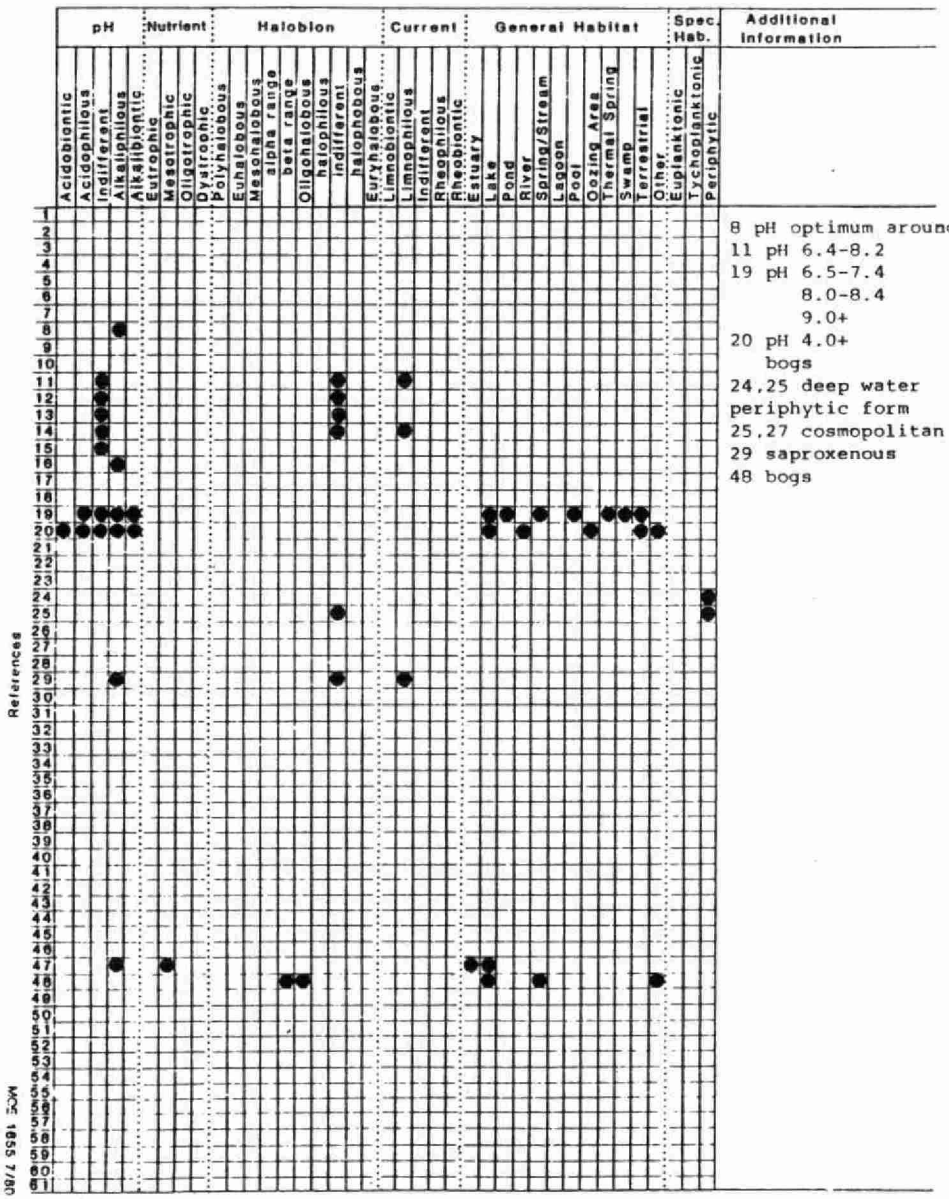


19 pH 6.5-7.4
20 pH 6.6-8.9

Ministry of the Environment
Ontario

Taxon Diploneis elliptica (Kutz.) Cl.

Synonym



8 pH optimum around
11 pH 6.4-8.2
19 pH 6.5-7.4
8.0-8.4
9.0+
20 pH 4.0+
bogs
24,25 deep water
periphytic form
25,27 cosmopolitan
29 saproxenous
48 bogs

Ministry of the Environment
Ontario

Taxon Diploneis finnica (Ehr.) Cl.

Synonym

	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20 pH 6.3,6.5

MOE 1855 7/90

Ministry of the Environment
Ontario

Taxon Diploneis interrupta (Kutz.) Cl.

Synonym

	pH					Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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11 pH 6.8-7.9
19 pH 6.5-7.4
8.0-8.4
9.0+
20 pH 9.0+
29 coastal form

MOE 1855 7/90

Ministry of the Environment
Ontario

Taxon Diploneis marginestriata Hust.

Synonym

	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1955 7/80

Ministry of the Environment
Ontario

Taxon Diploneis minuta Peter.

Synonym

	pH					Nutrient				Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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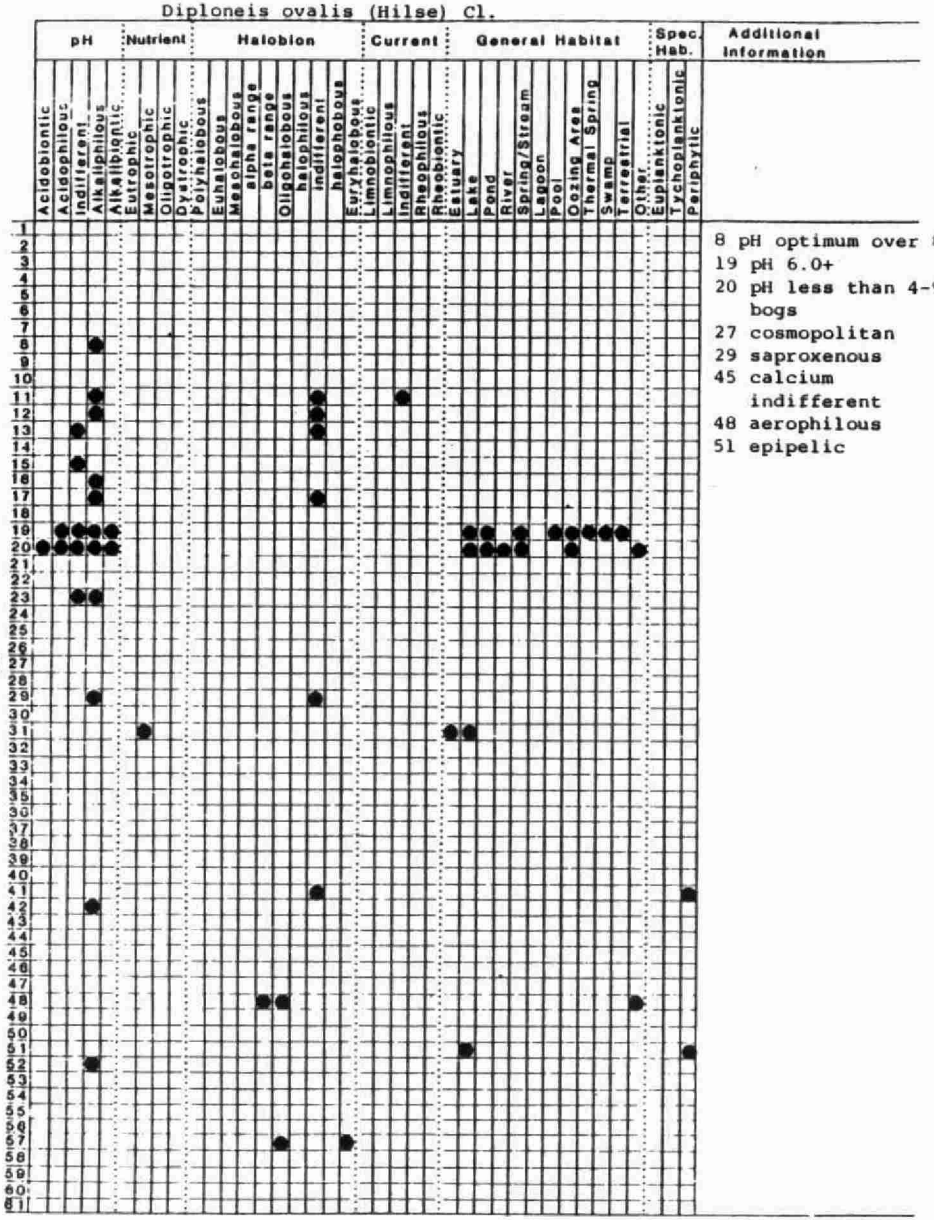
MOE 1955 7/80

Ministry of the Environment
Ontario

Taxon Diploneis oblongella (Naeg. ex Kutz.) Ross

Synonym Diploneis (ovalis var.?) oblongella (Naeg.) Cl.

Diploneis ovalis (Hilse) Cl.

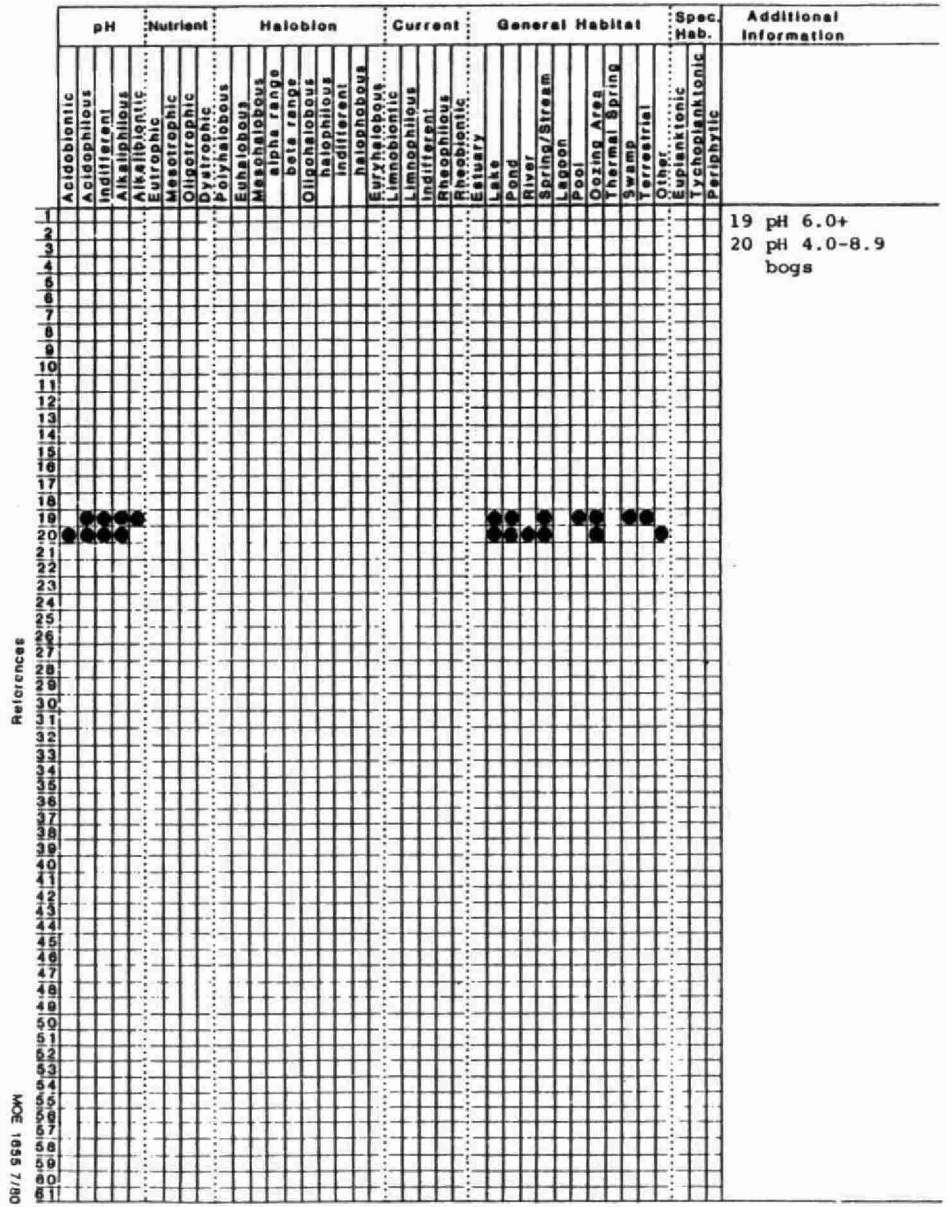


MOE 1855 7/80

Ministry of the Environment
Ontario

Taxon Diploneis oculata (Breb.) Cl.

Synonym

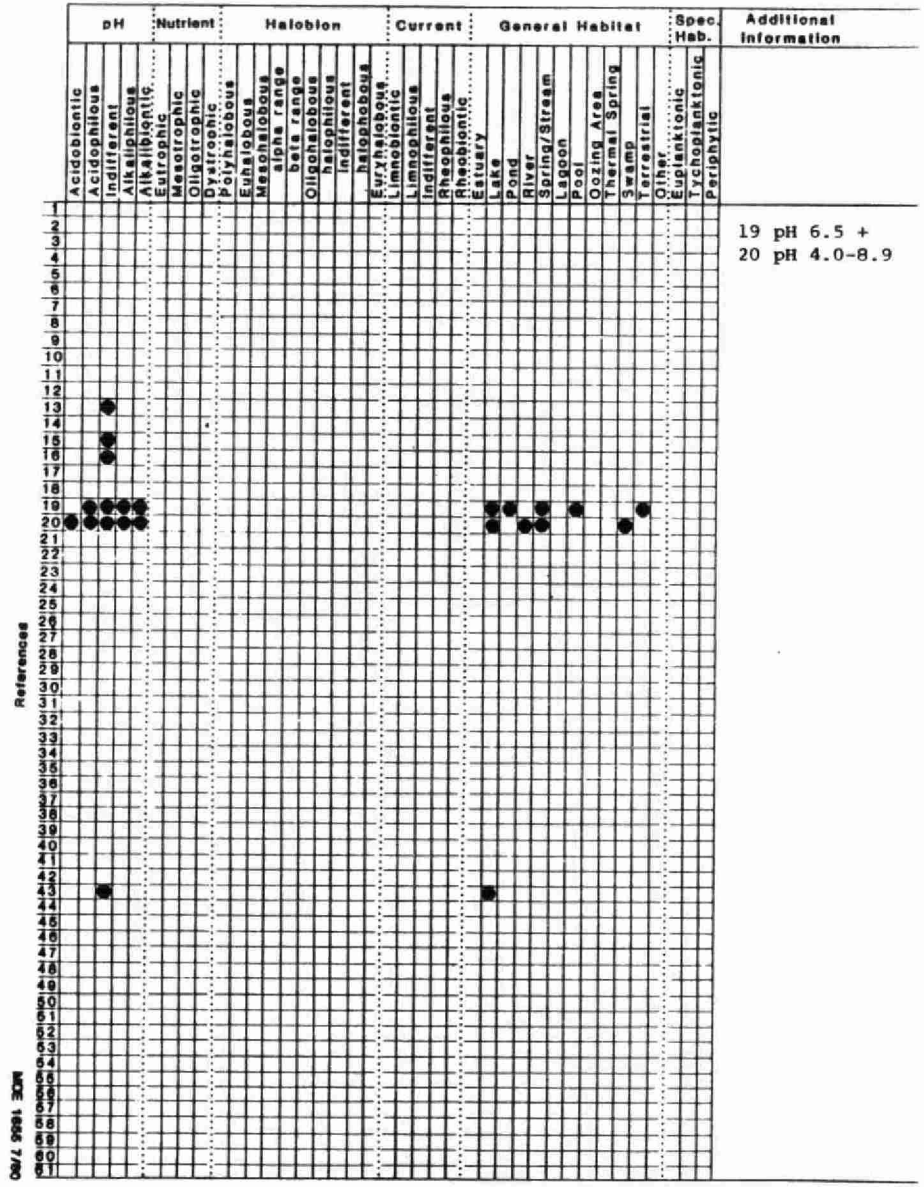


MOE 1855 7/80

Ministry of the Environment
Ontario

Taxon Diploneis peterseni Hust.

Synonym



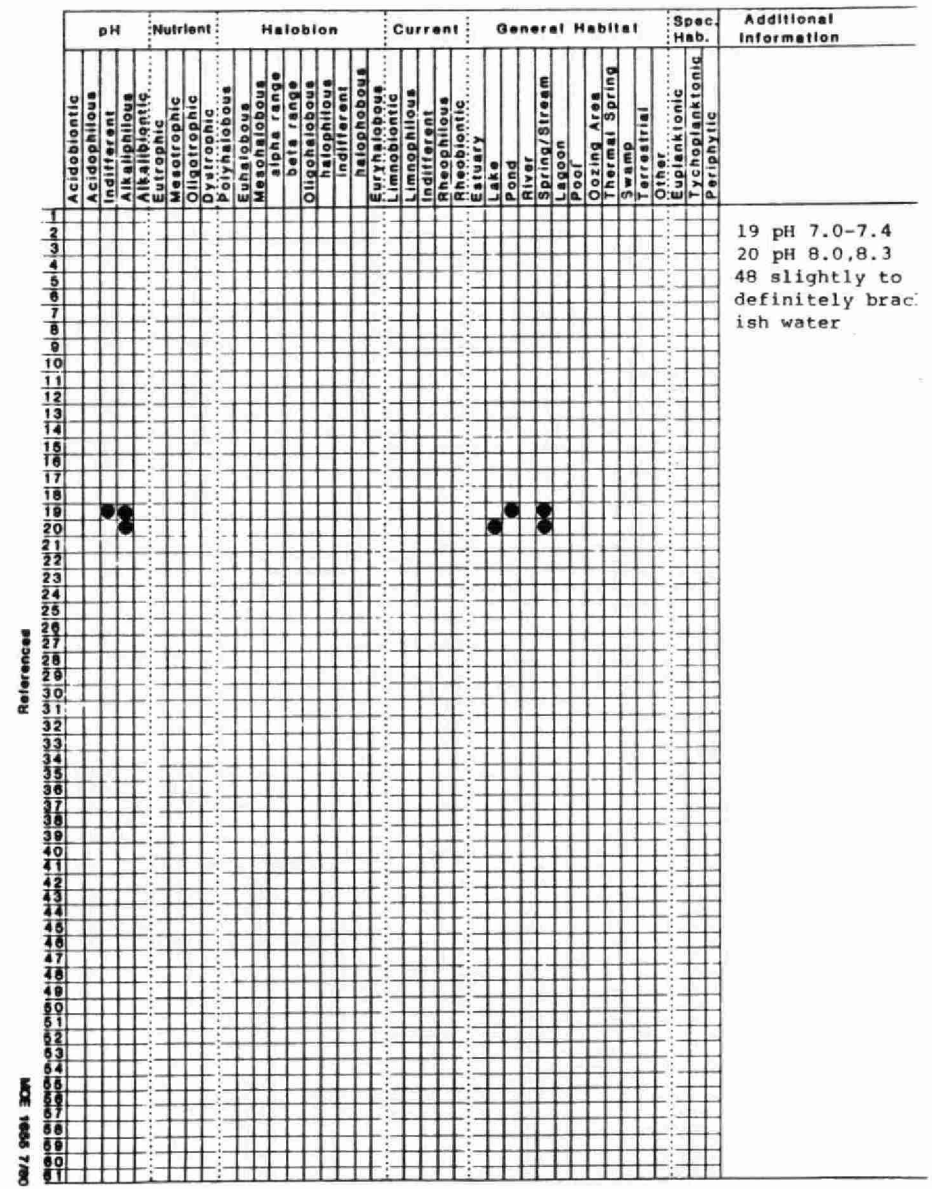
Additional information

19 pH 6.5 +
20 pH 4.0-8.9

Ministry of the Environment
Ontario

Taxon Diploneis pseudovalis Hust.

Synonym

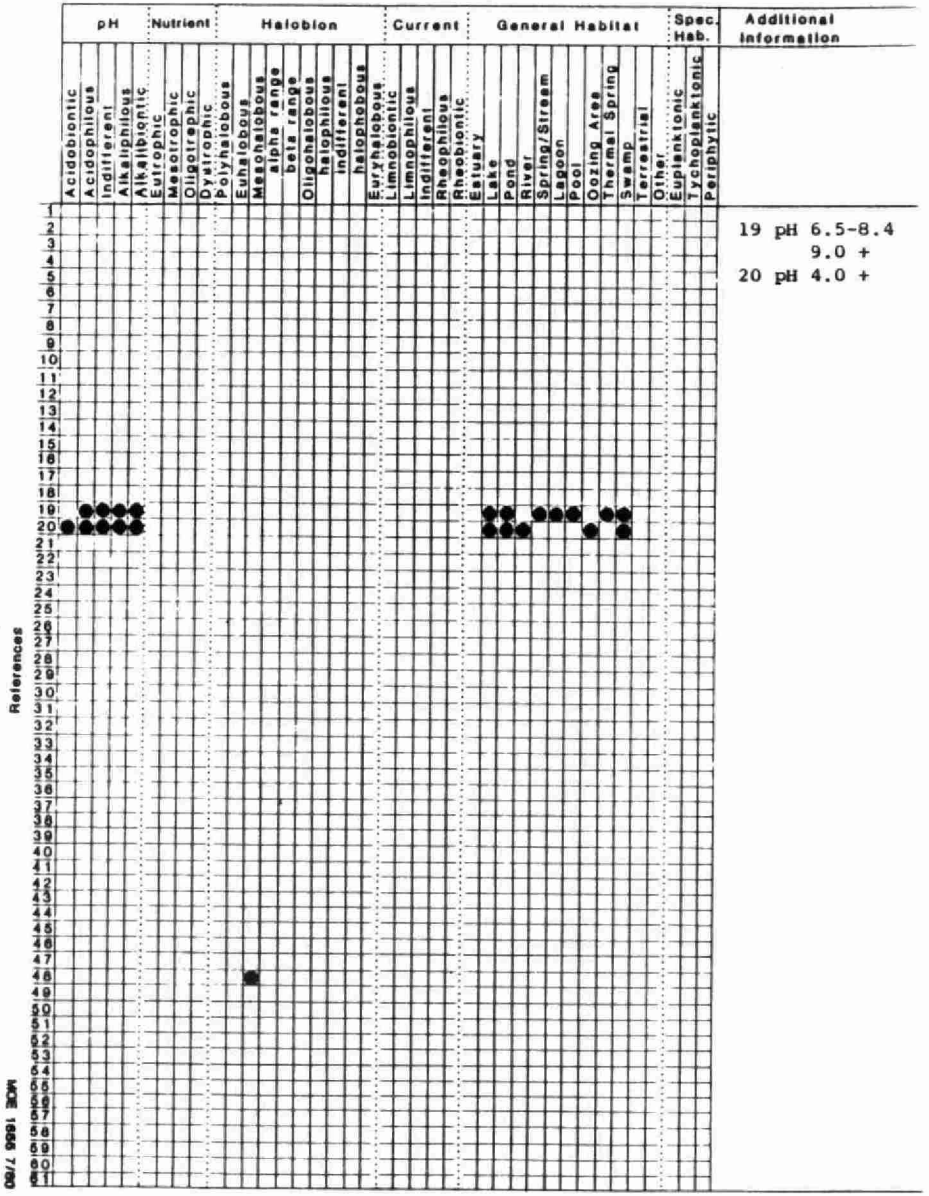


Additional information

19 pH 7.0-7.4
20 pH 8.0,8.3
48 slightly to definitely brac ish water

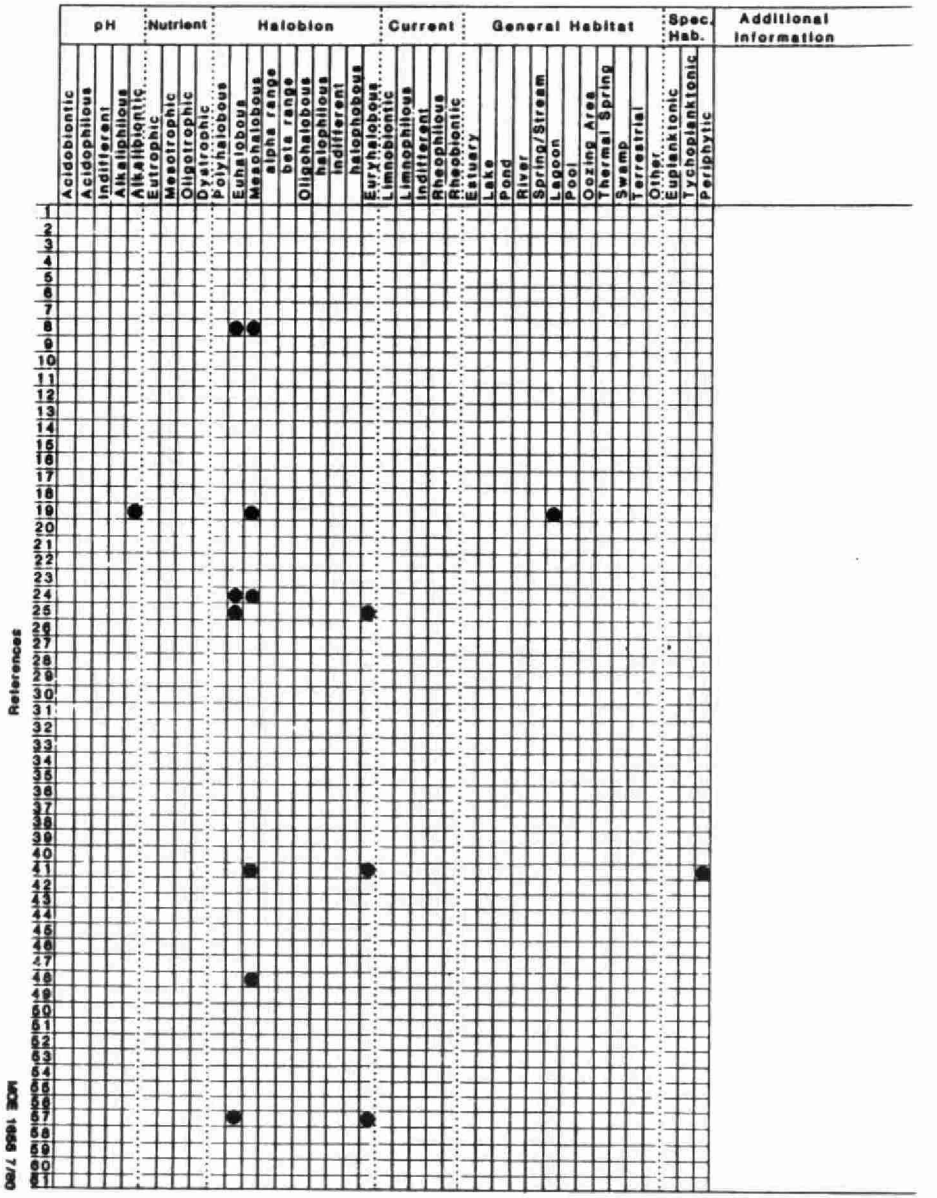
Taxon Diploneis smithii var. pumila (Grun.) Hust.

Synonym



Taxon Diploneis smithii (Breb. ex W.Sm.) Cl. var. smithii

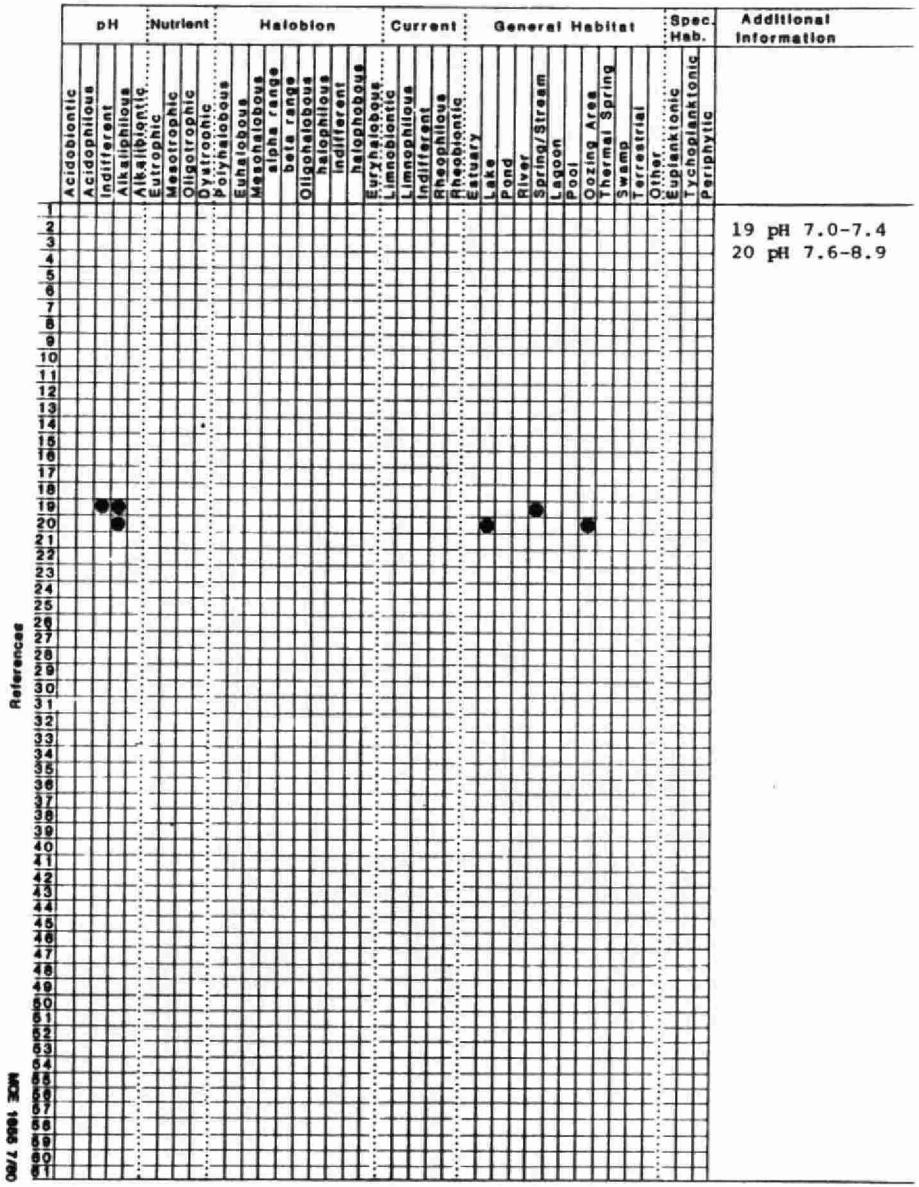
Synonym



Ministry of the Environment
Ontario

Taxon Diploneis subovalis Cl.

Synonym

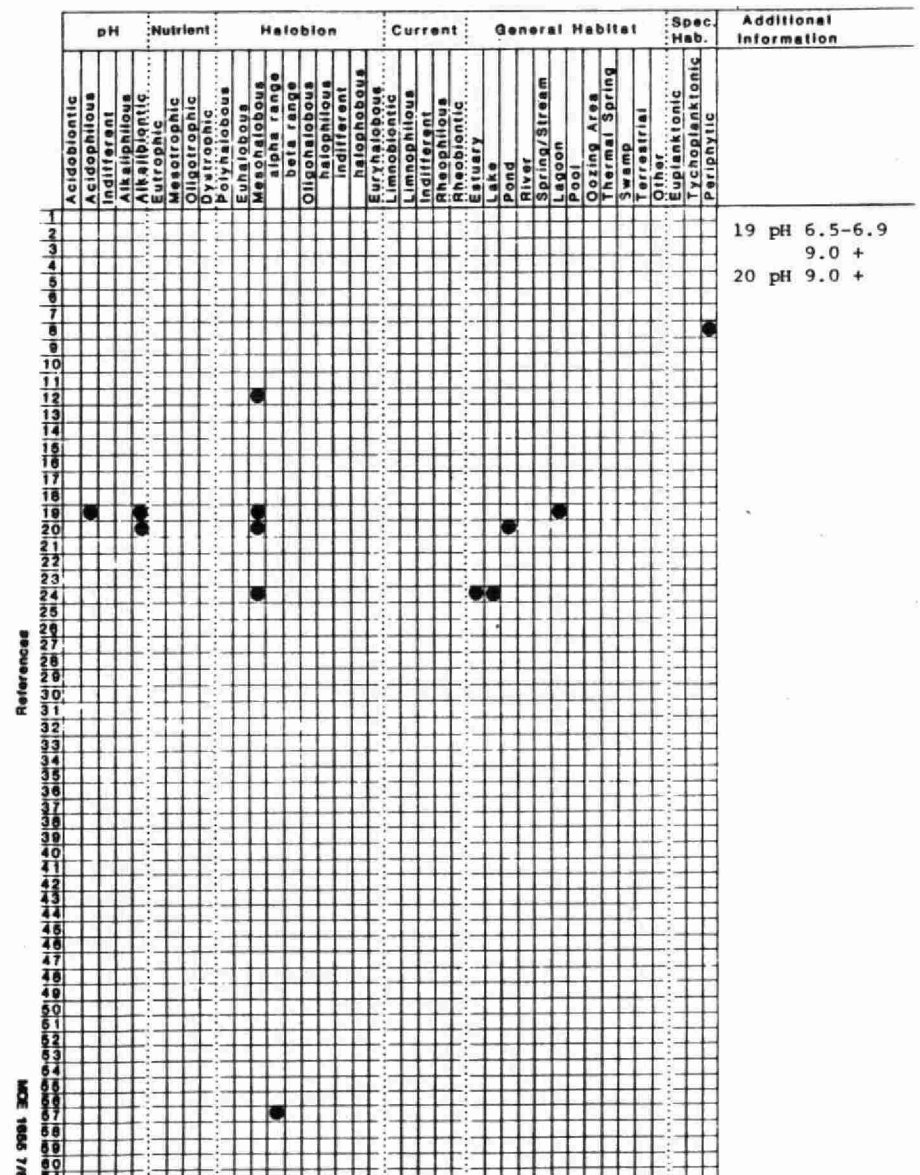


19 pH 7.0-7.4
20 pH 7.6-8.9

Ministry of the Environment
Ontario

Taxon Entomoneis alata (Ehr.) Ehr.

Synonym Amphiprora alata (Ehr.) Kutz.

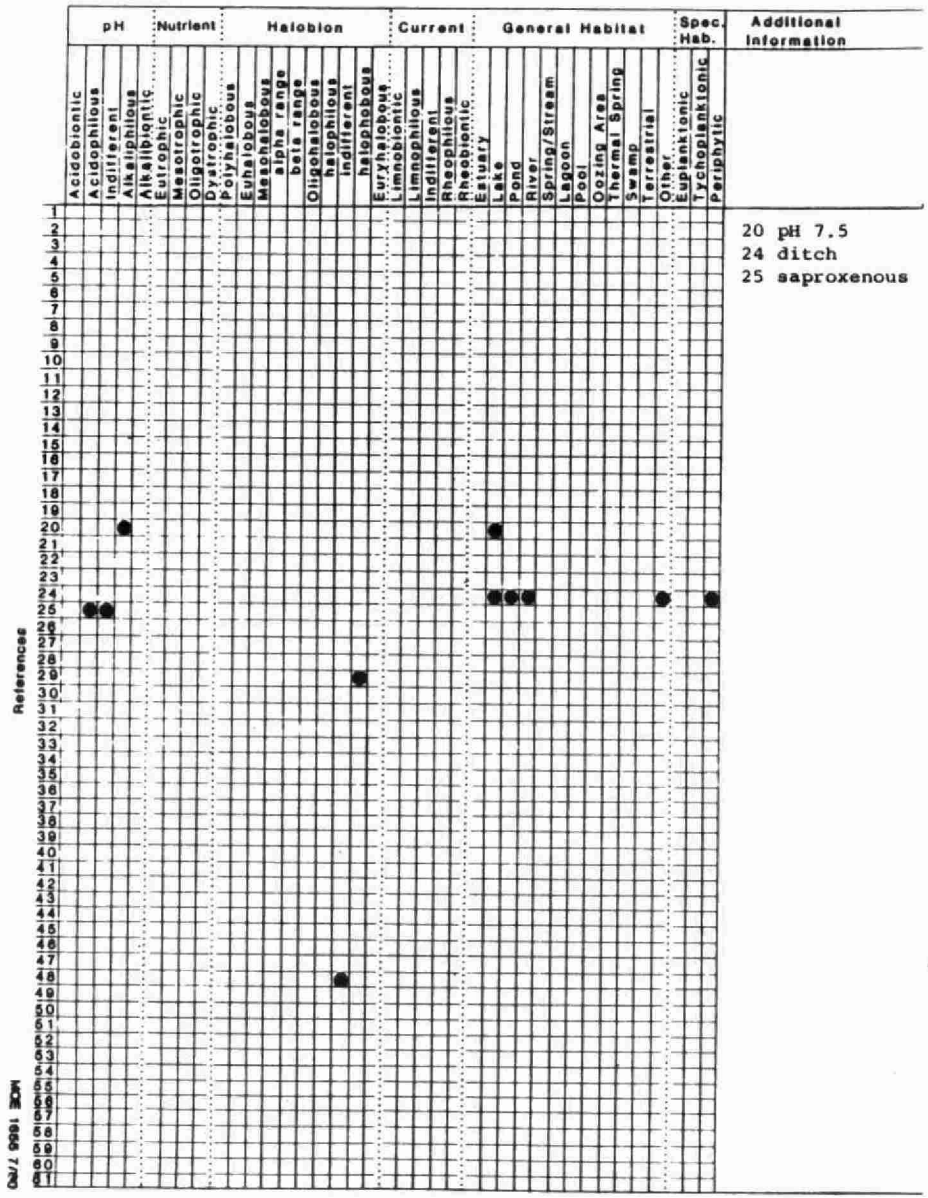


19 pH 6.5-6.9
9.0 +
20 pH 9.0 +

Ministry of the Environment
Ontario

Taxon Entomoneis ornata (Bail.) Reim.

Synonym Amphiprora ornata Bail.

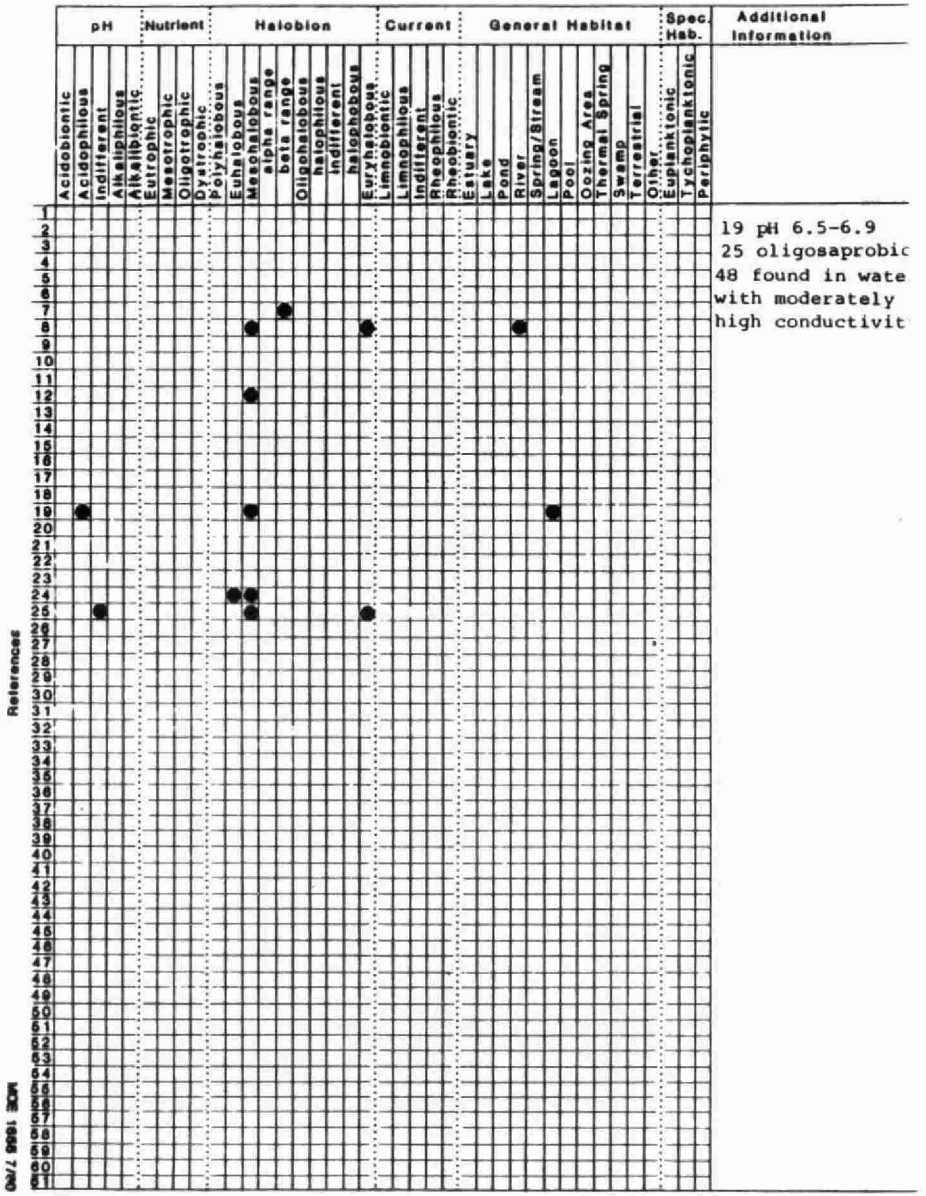


20 pH 7.5
24 ditch
25 saproxenous

Ministry of the Environment
Ontario

Taxon Entomoneis paludosa (W. Sm.) Reim.

Synonym Amphiprora paludosa W. Sm.

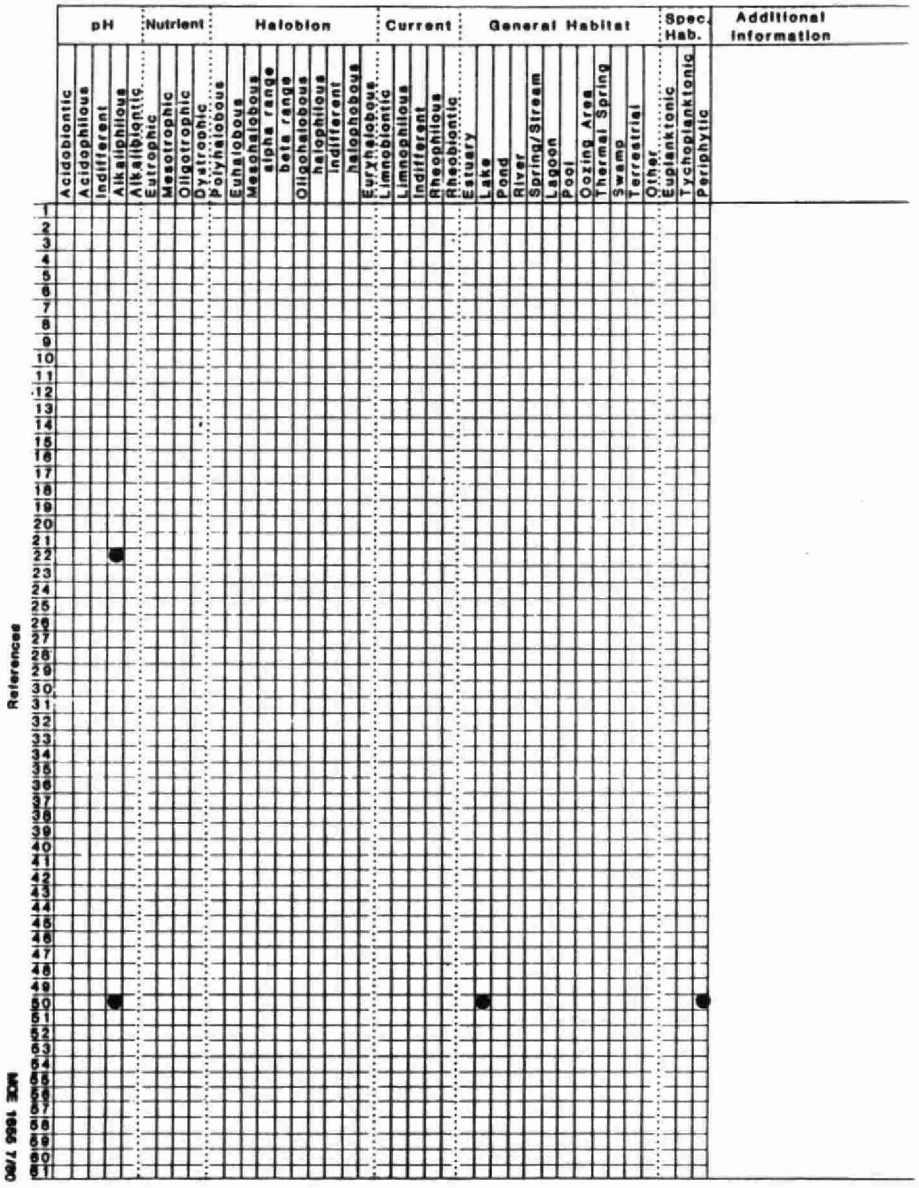


19 pH 6.5-6.9
25 oligosaprobic
48 found in wate
with moderately
high conductivit

Ministry of the Environment
Ontario

Taxon Epithemia sp.

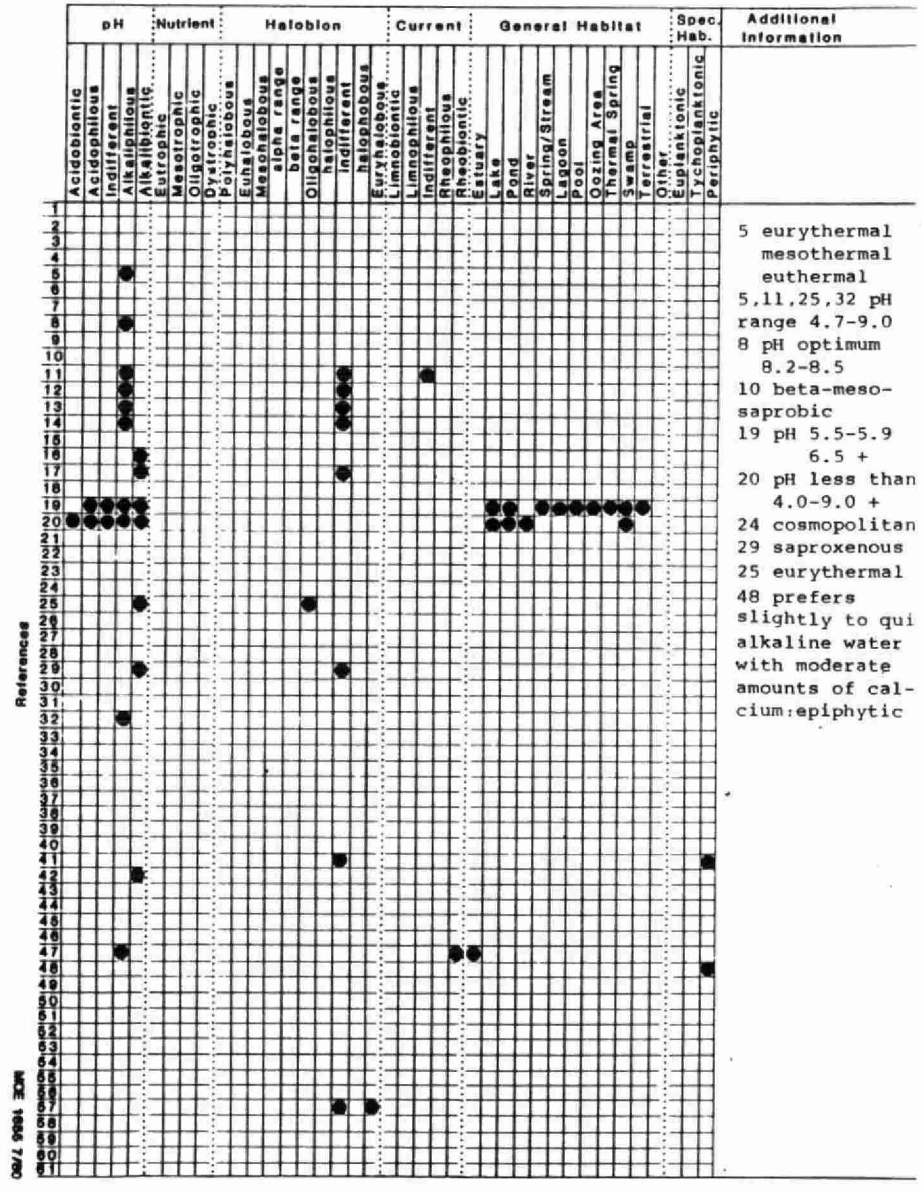
Synonym



Ministry of the Environment
Ontario

Taxon Epithemia adnata (Kutz.) Breb. var. adnata

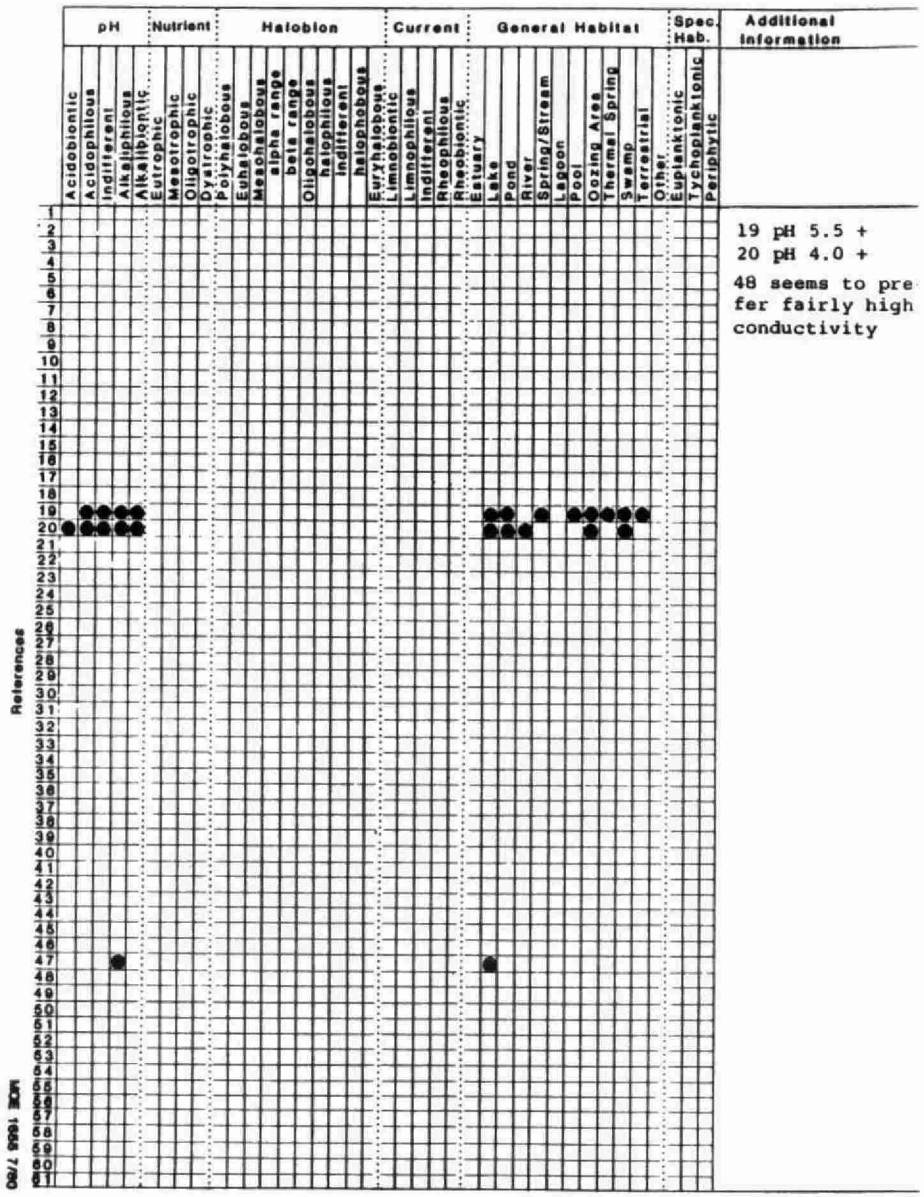
Synonym Epithemia zebra (Ehr.) Kutz.



5 eurythermal
mesothermal
euthermal
5,11,25,32 pH range 4.7-9.0
8 pH optimum 8.2-8.5
10 beta-meso-saprobic
19 pH 5.5-5.9 6.5 +
20 pH less than 4.0-9.0 +
24 cosmopolitan
29 saproxenous
25 eurythermal
48 prefers slightly to qui alkaline water with moderate amounts of calcium;epiphytic

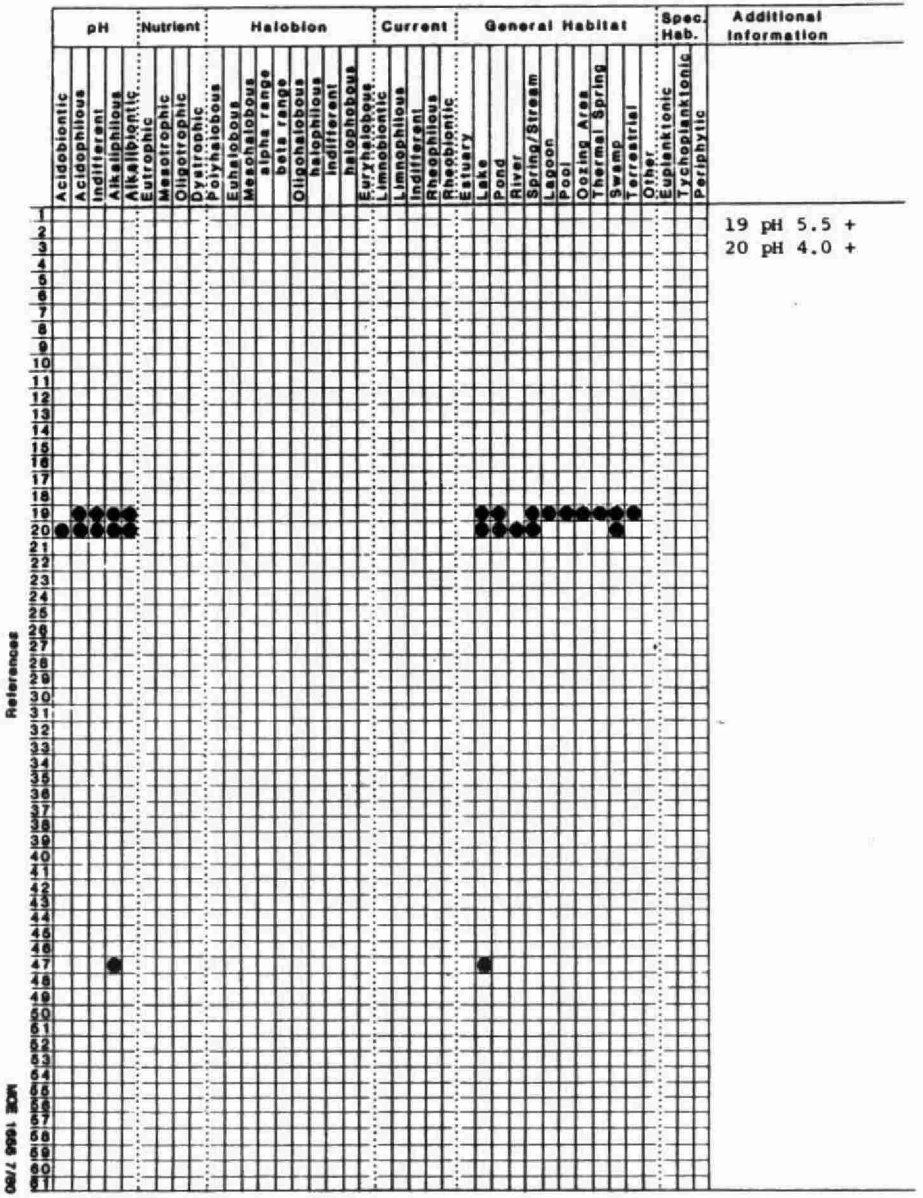
Taxon Epithemia adnata var. porcellus(Kutz.) Patr.

Synonym Epithemia zebra var. porcellus (Kutz.)Grun.



Taxon Epithemia adnata var. saxonica (Kutz.) Patr.

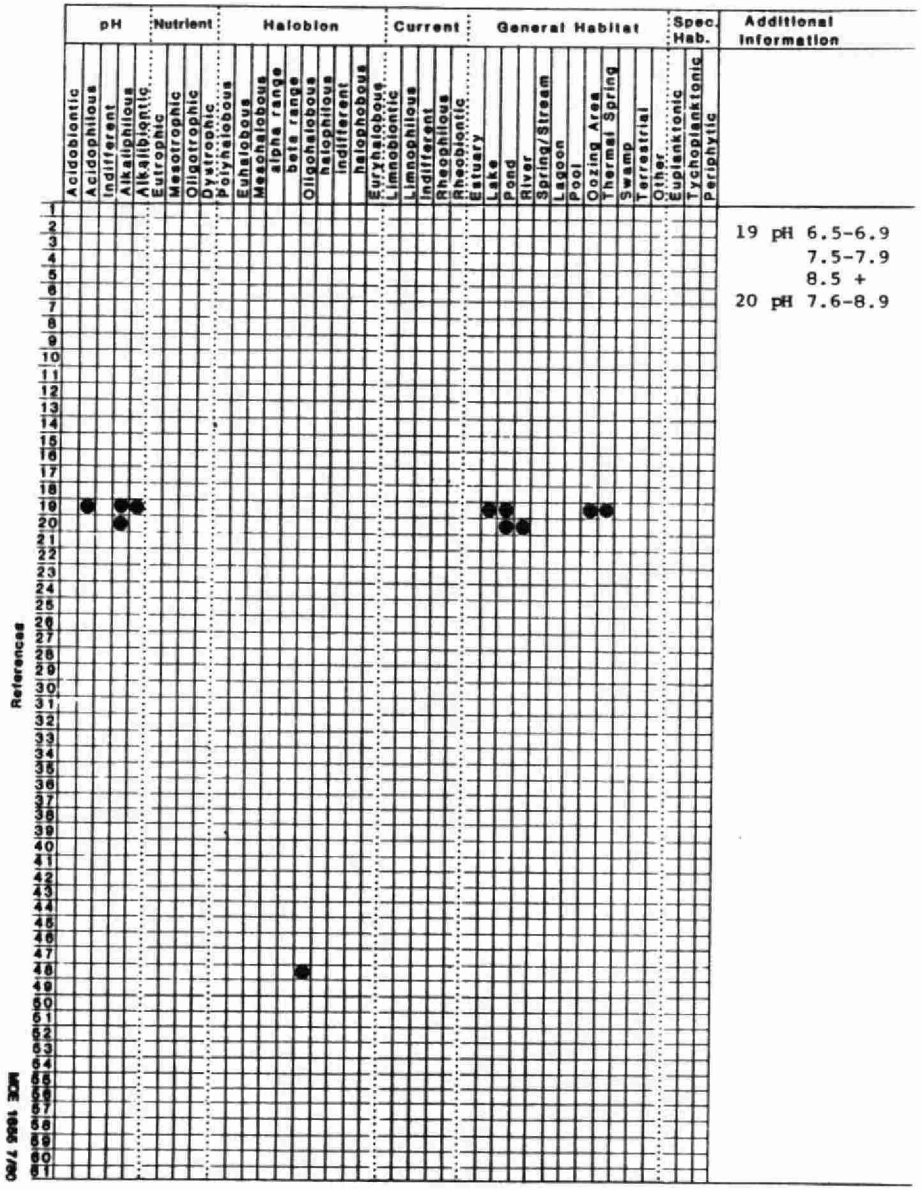
Synonym Epithemia zebra var. saxonica (Kutz.) Grun.



Ministry of the Environment
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Taxon Epithemia argus var. alpestris Grun.

Synonym Epithemia alpestris W. Sm.

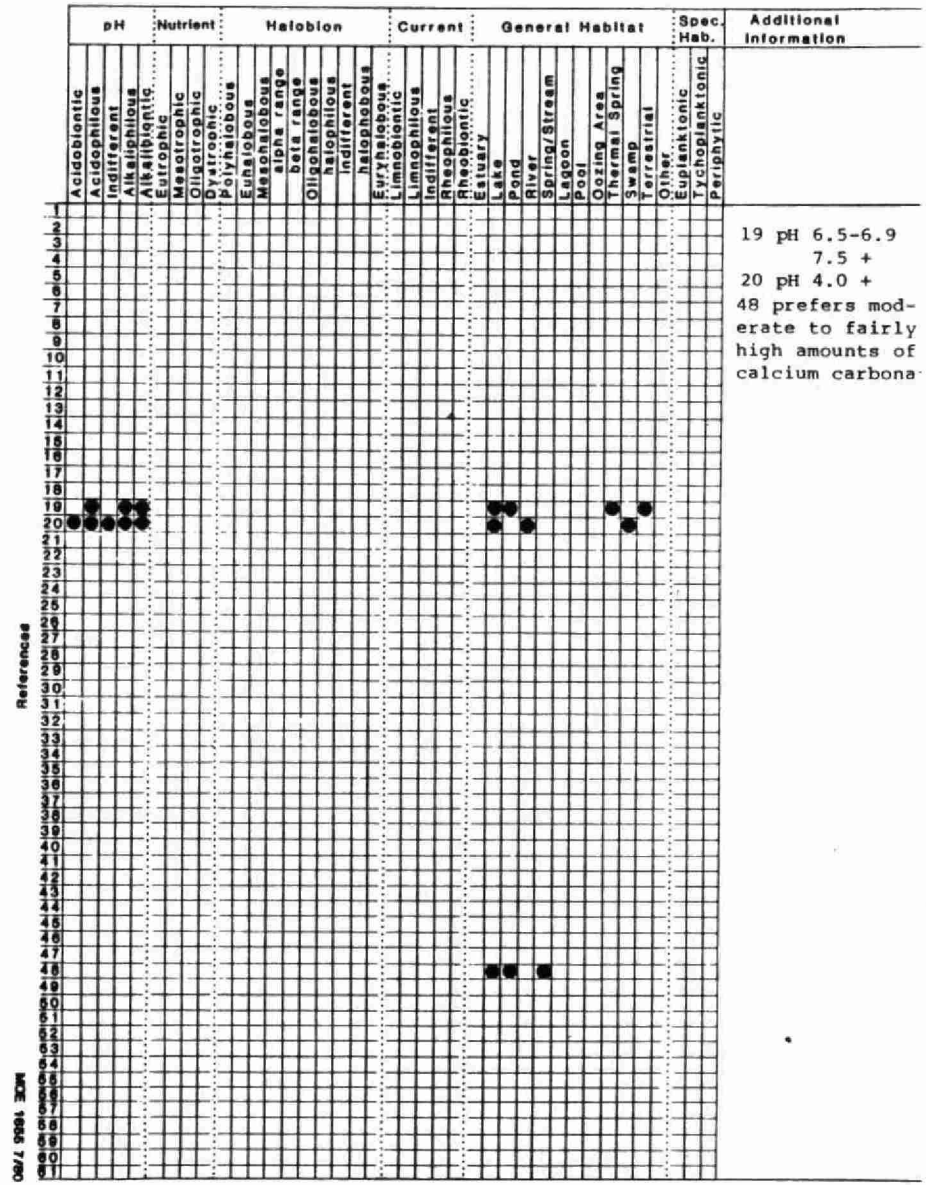


19 pH 6.5-6.9
7.5-7.9
8.5 +
20 pH 7.6-8.9

Ministry of the Environment
Ontario

Taxon Epithemia argus (Ehr.) Kutz. var. argus

Synonym

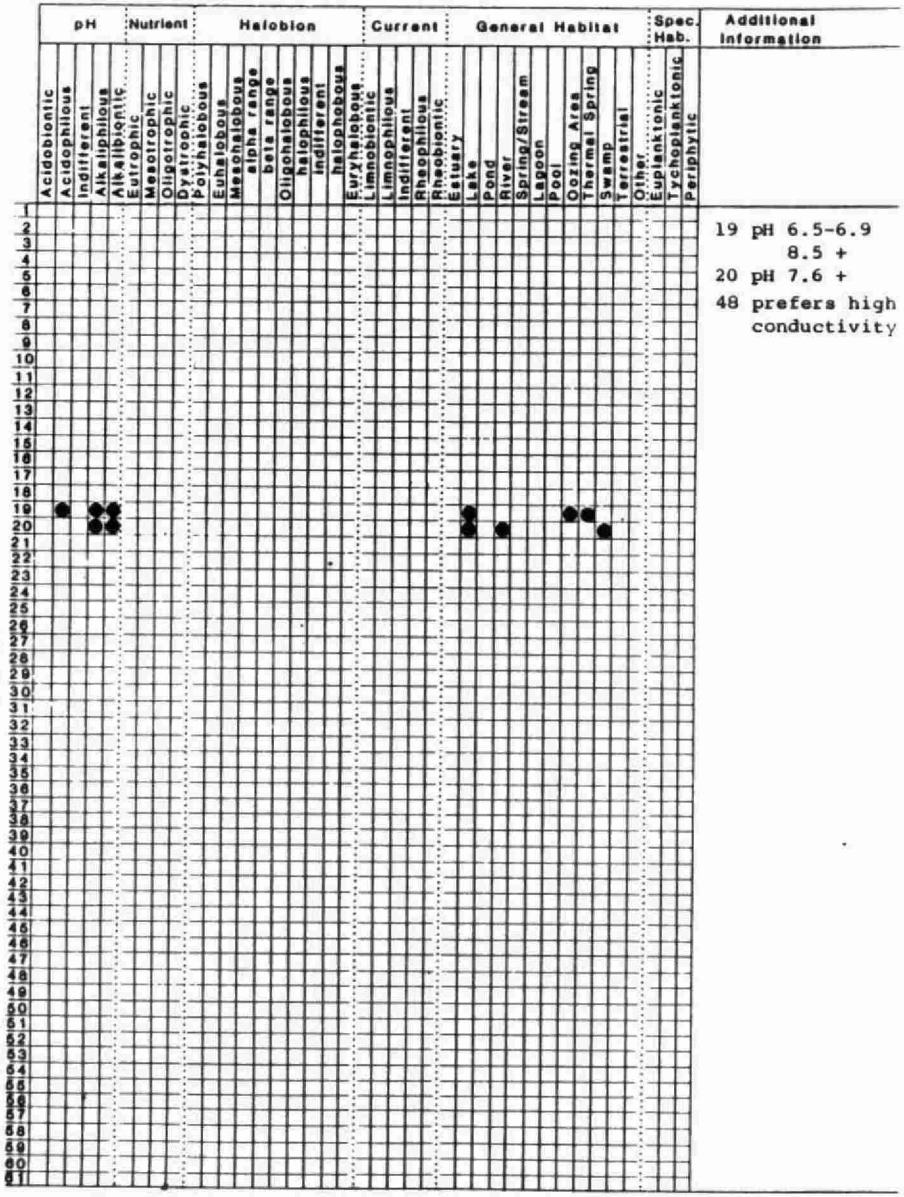


19 pH 6.5-6.9
7.5 +
20 pH 4.0 +
48 prefers moderate to fairly high amounts of calcium carbona

Ministry of the Environment
Ontario

Taxon Epithemia argus var. longicornis (Ehr.) Grun.

Synonym

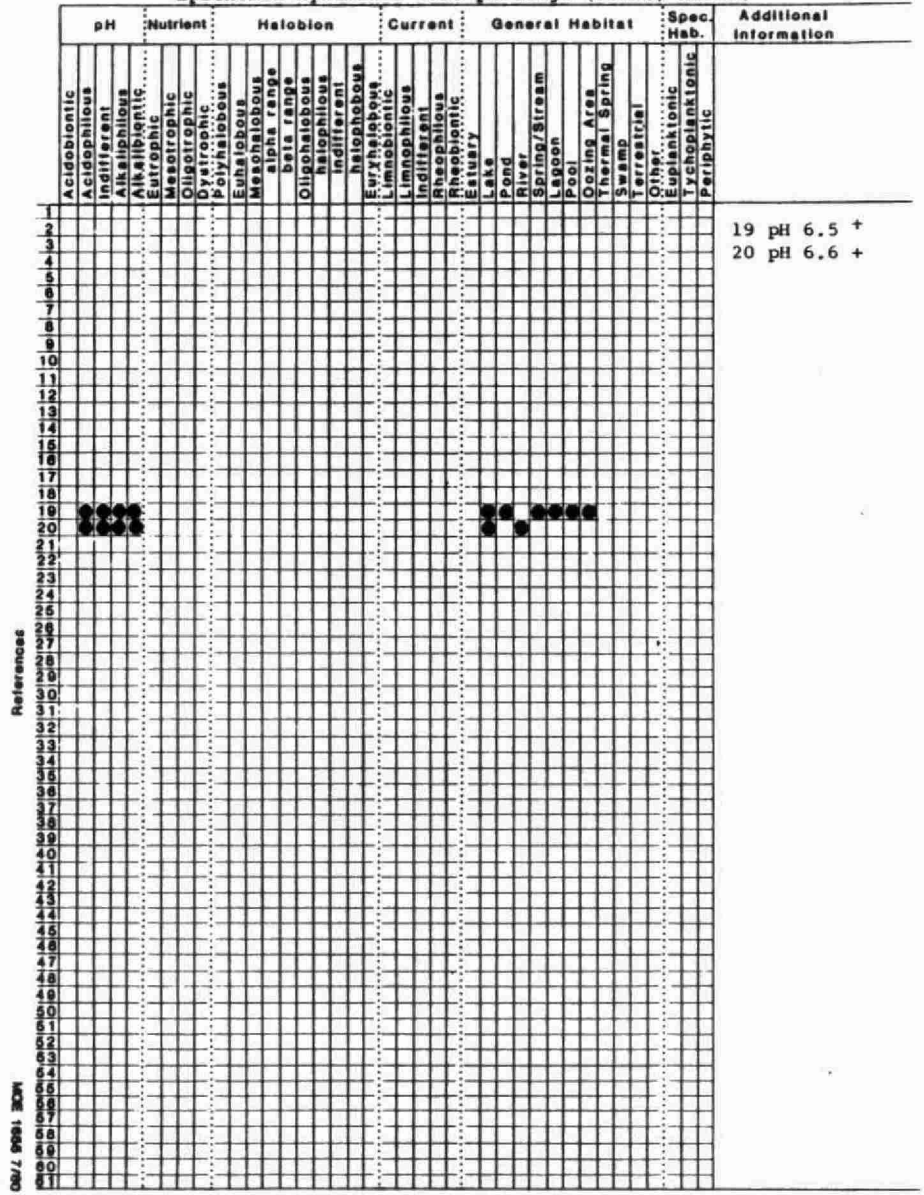


19 pH 6.5-6.9
8.5 +
20 pH 7.6 +
48 prefers high conductivity

Ministry of the Environment
Ontario

Taxon Epithemia hyndmanii W. Sm.

Synonym Epithemia perlonga Pant.
Epithemia hyndmanii var. perlonga (Pant.) Herib.

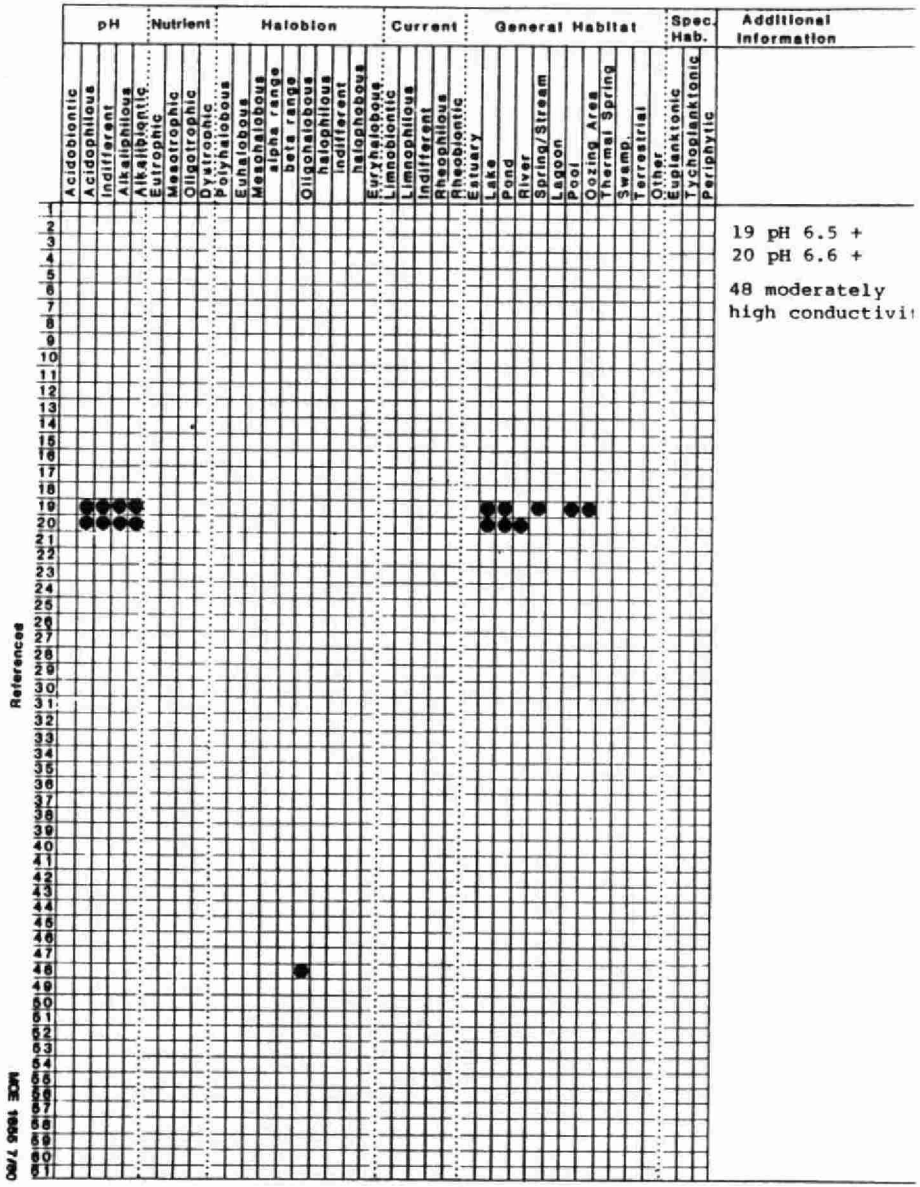


19 pH 6.5 +
20 pH 6.6 +

Ministry of the Environment
Ontario

Taxon Epithemia intermedia Fricke

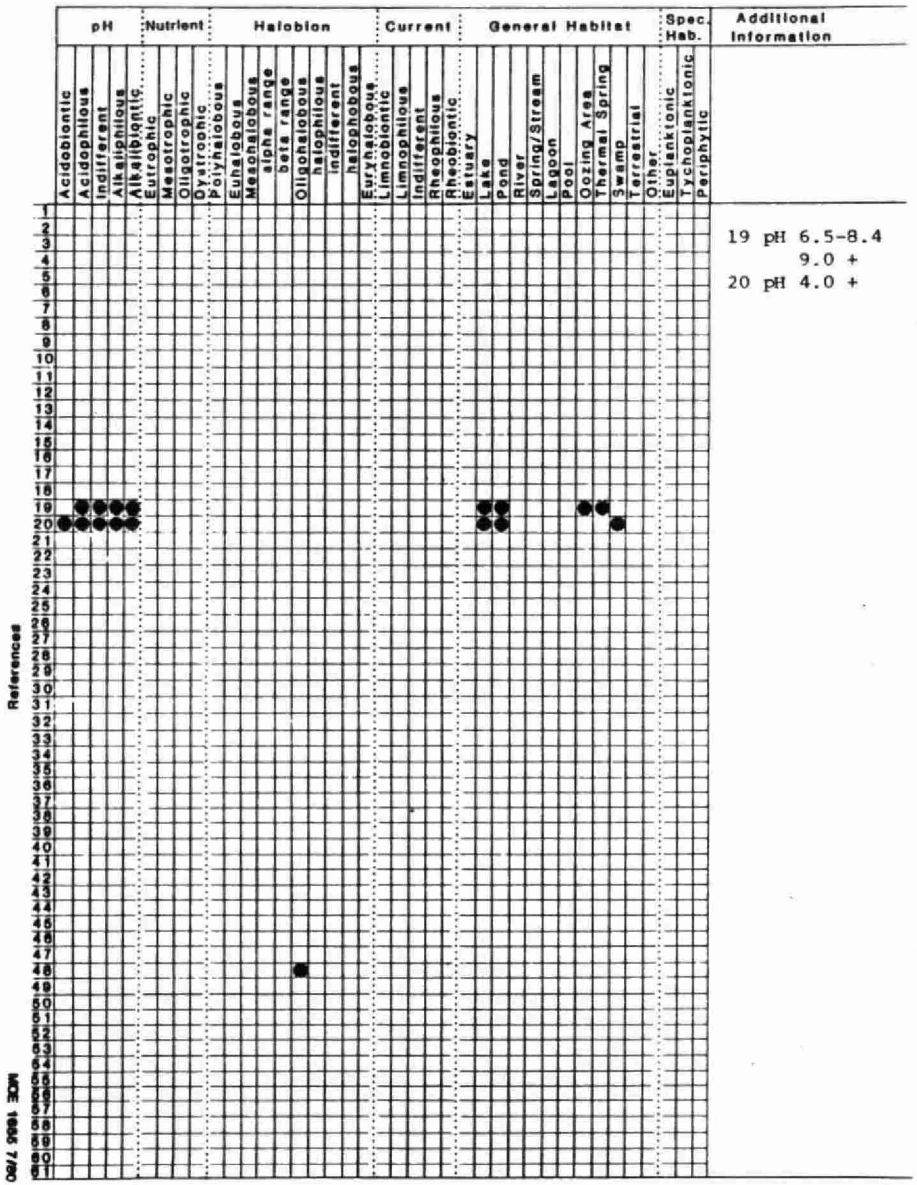
Synonym



Ministry of the Environment
Ontario

Taxon Epithemia muelleri Fricke

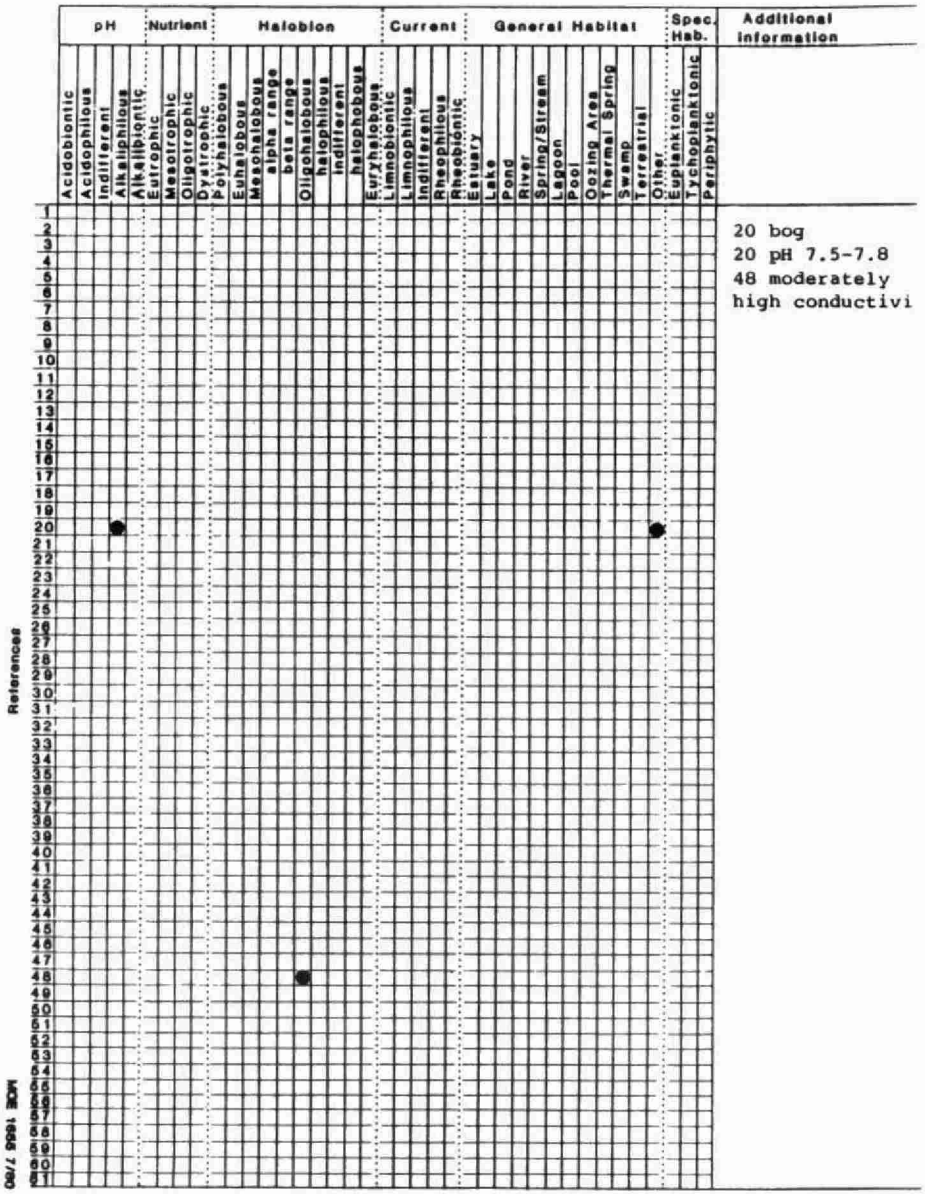
Synonym



Ministry of the Environment
Ontario

Taxon Epithemia ocellata (Ehr.) Kutz.

Synonym



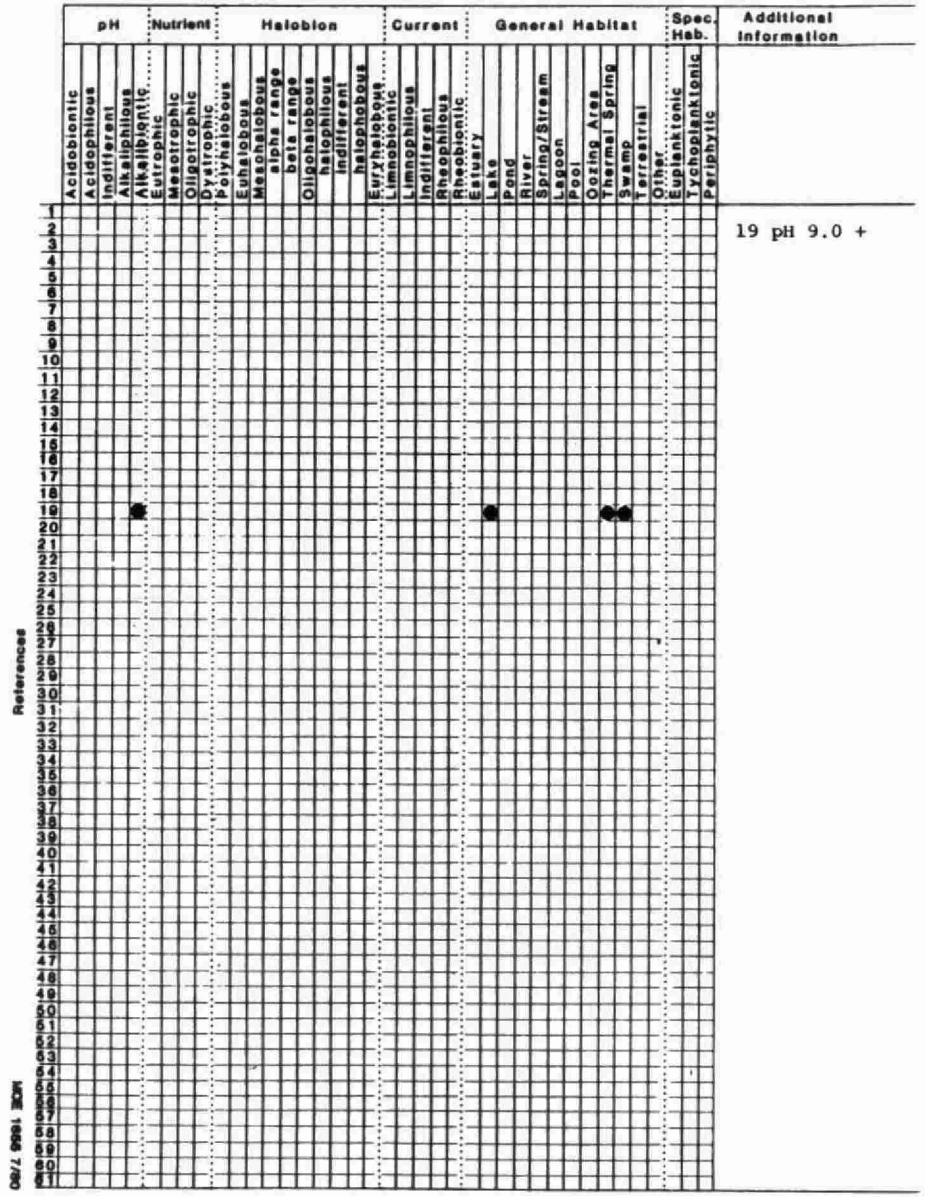
Additional information

20 bog
20 pH 7.5-7.8
48 moderately high conductivi

Ministry of the Environment
Ontario

Taxon Epithemia reicheltii Fricke

Synonym



Additional information

19 pH 9.0 +

Ministry of the Environment
Ontario

Taxon Epithemia sorex var. gracilis Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20 pH 7.8

MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Epithemia sorex var. lapponica Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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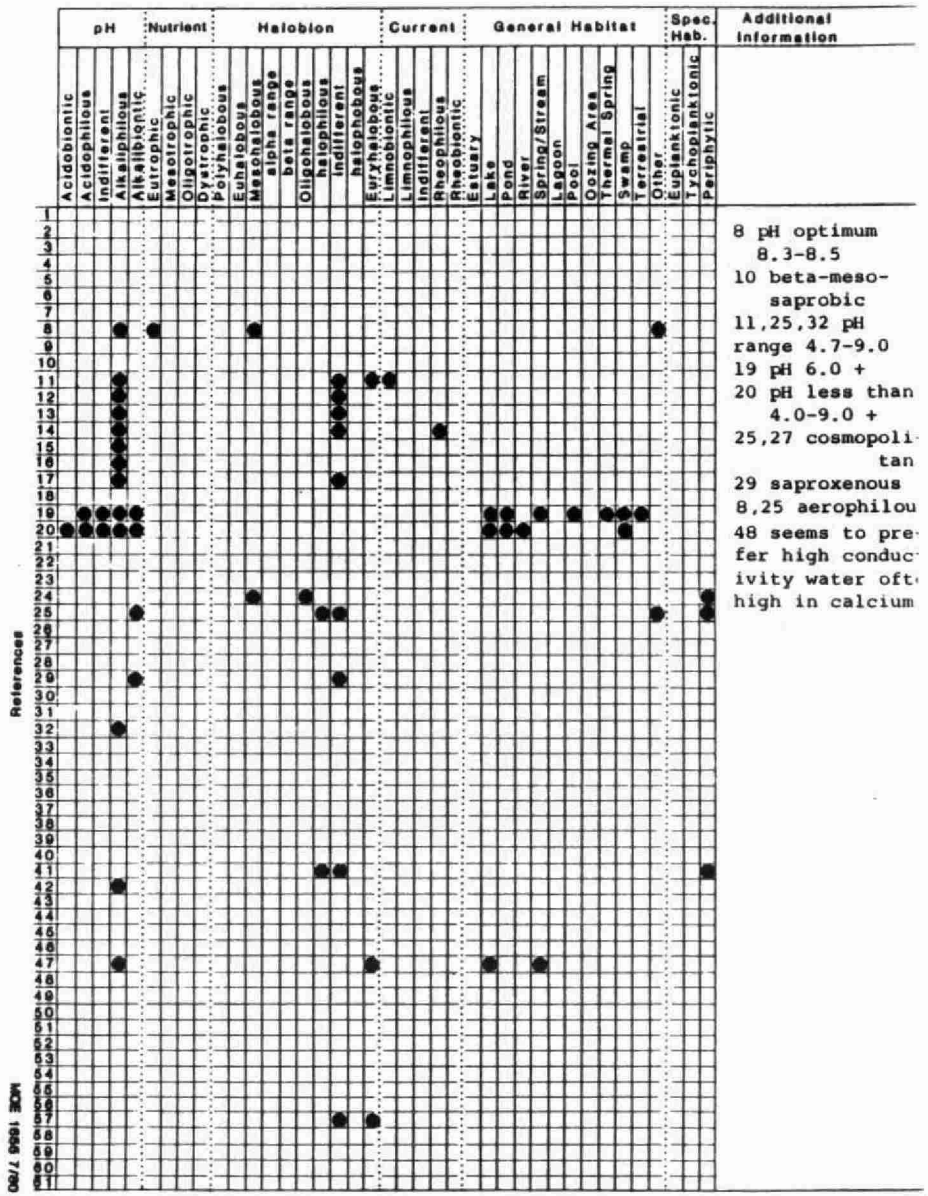
19 pH 6.0 +

MOE 1986 7/90

Ministry of the Environment
Ontario

Taxon Epithemia sorex Kutz. var. sorex

Synonym

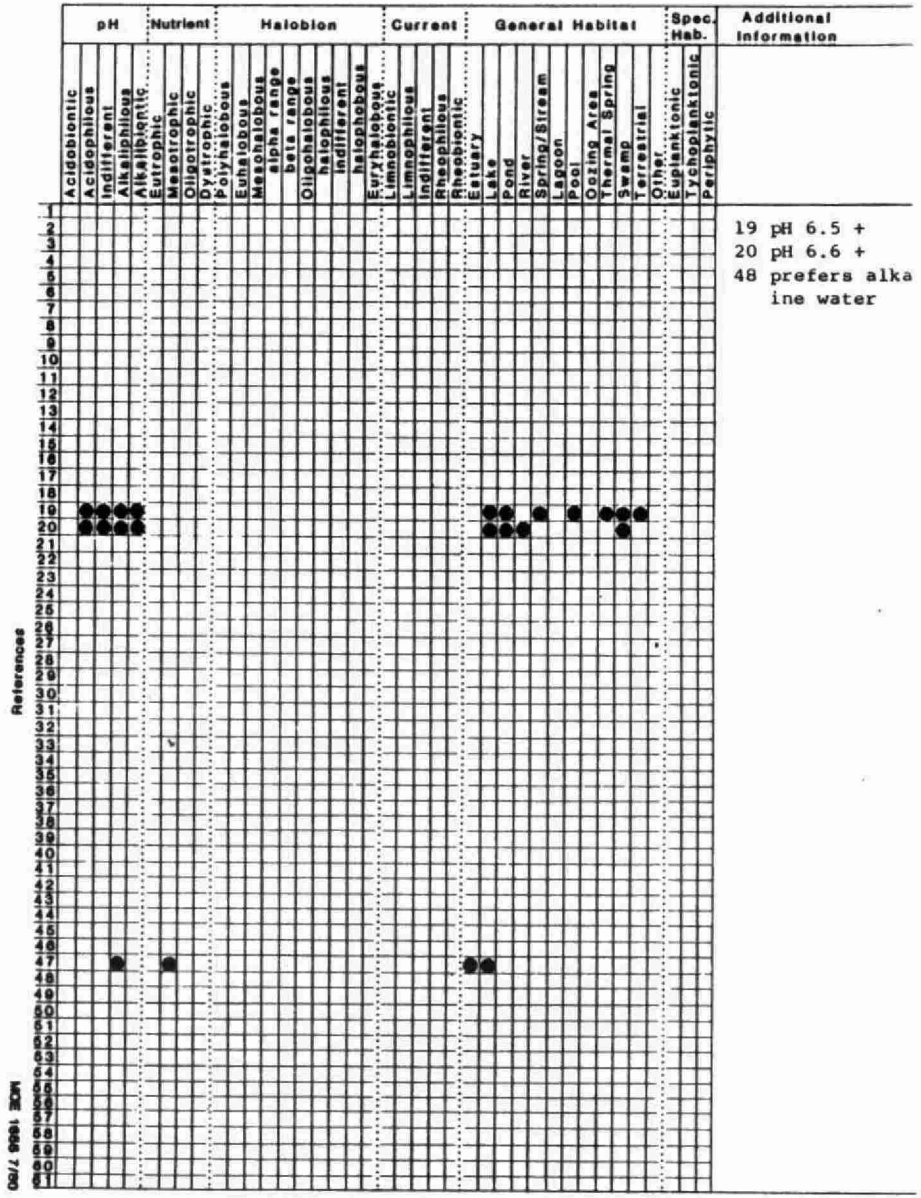


8 pH optimum 8.3-8.5
10 beta-meso-saprobic
11,25,32 pH range 4.7-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 saproxenous
8,25 aerophilou
48 seems to prefer high conductivity water oft high in calcium

Ministry of the Environment
Ontario

Taxon Epithemia turgida var. granulata (Ehr.) Brun.

Synonym

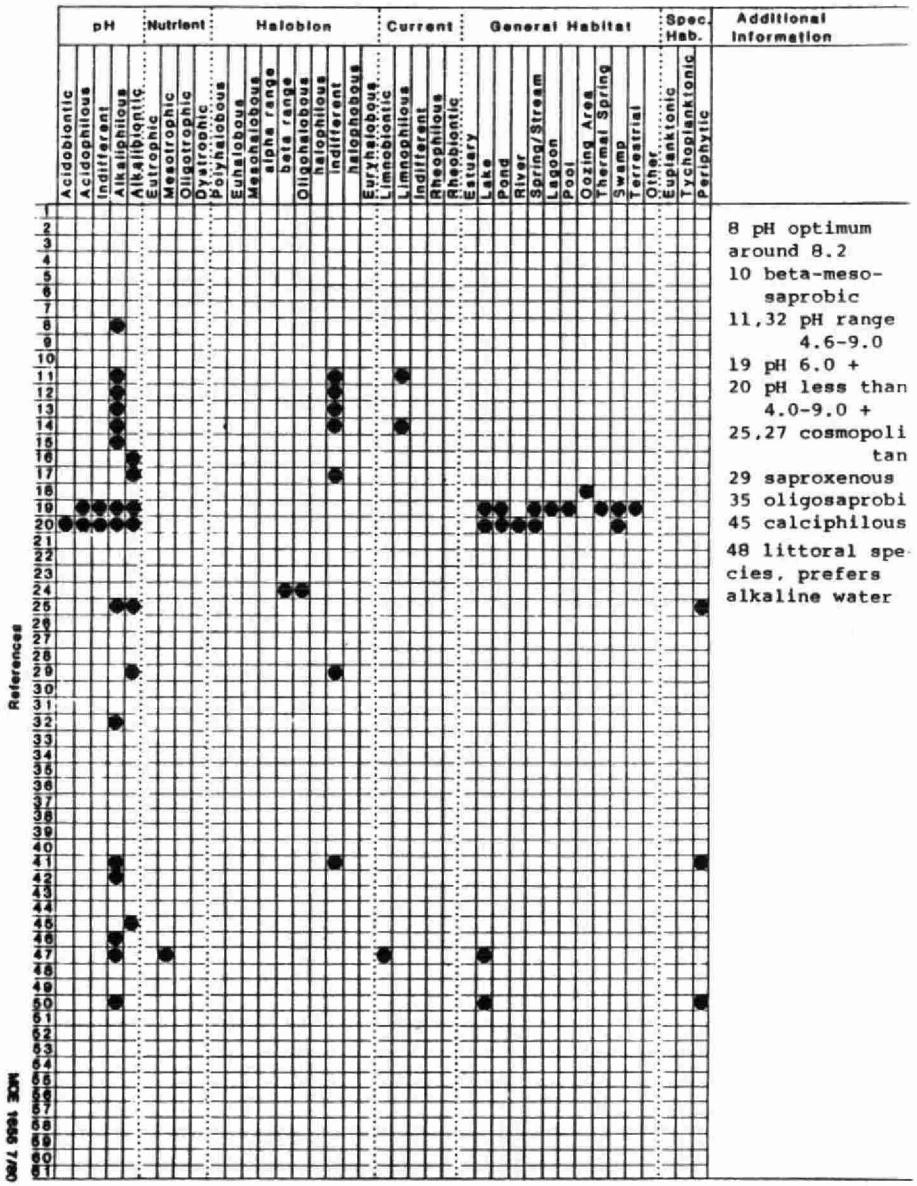


19 pH 6.5 +
20 pH 6.6 +
48 prefers alkaline water

Ministry of the Environment
Ontario

Taxon Epithemia turgida (Ehr.) Kutz. var. turgida

Synonym

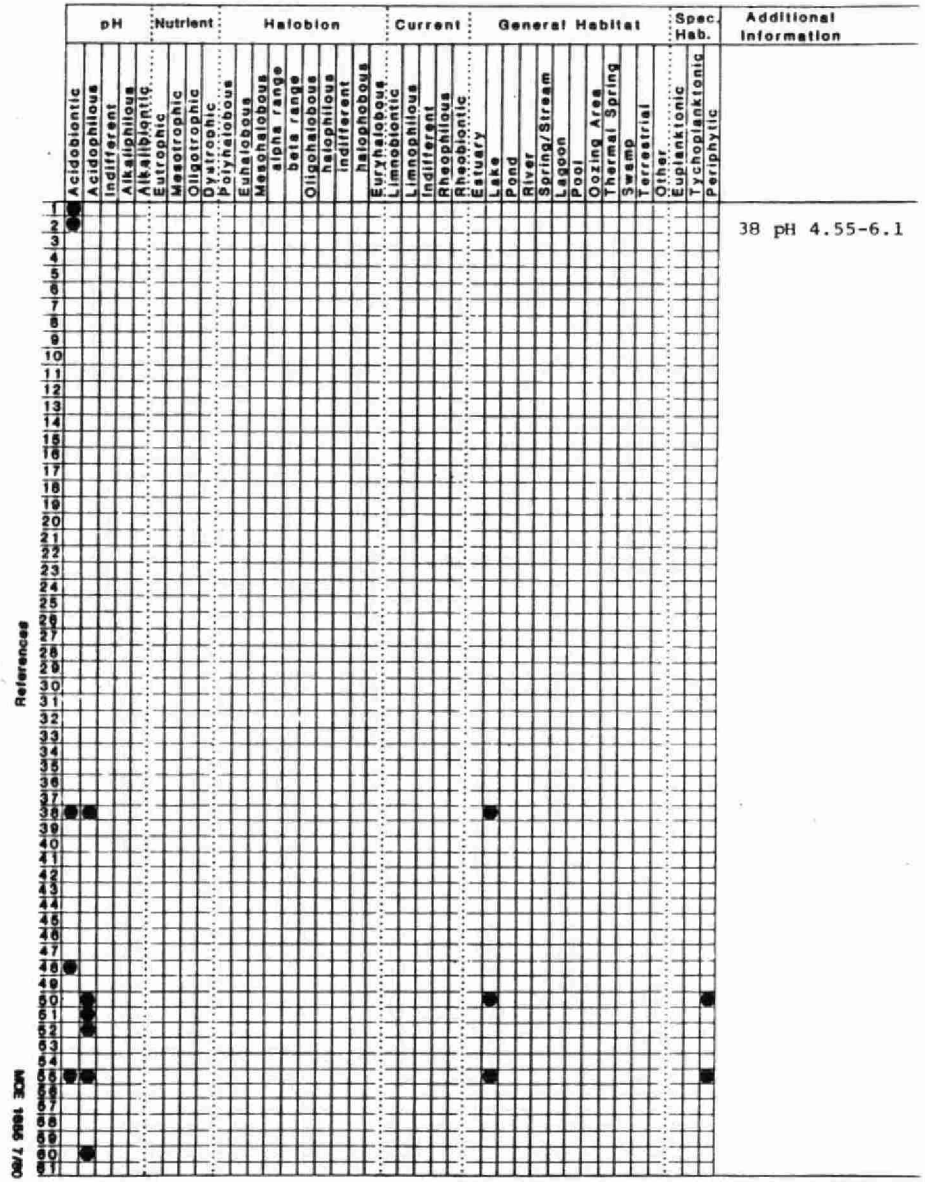


8 pH optimum around 8.2
10 beta-meso-saprobic
11,32 pH range 4.6-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 saproxenous
35 oligosaprobi
45 calciphilous
48 littoral species, prefers alkaline water

Ministry of the Environment
Ontario

Taxon Eunotia sp.

Synonym



38 pH 4.55-6.1

Ministry of the Environment
Ontario

Taxon Eunotia arctica Hust.

Synonym

	pH					Nutrient					Halobion								Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1858 7/80

Ministry of the Environment
Ontario

Taxon Eunotia arcuoides Foged

Synonym

	pH					Nutrient					Halobion								Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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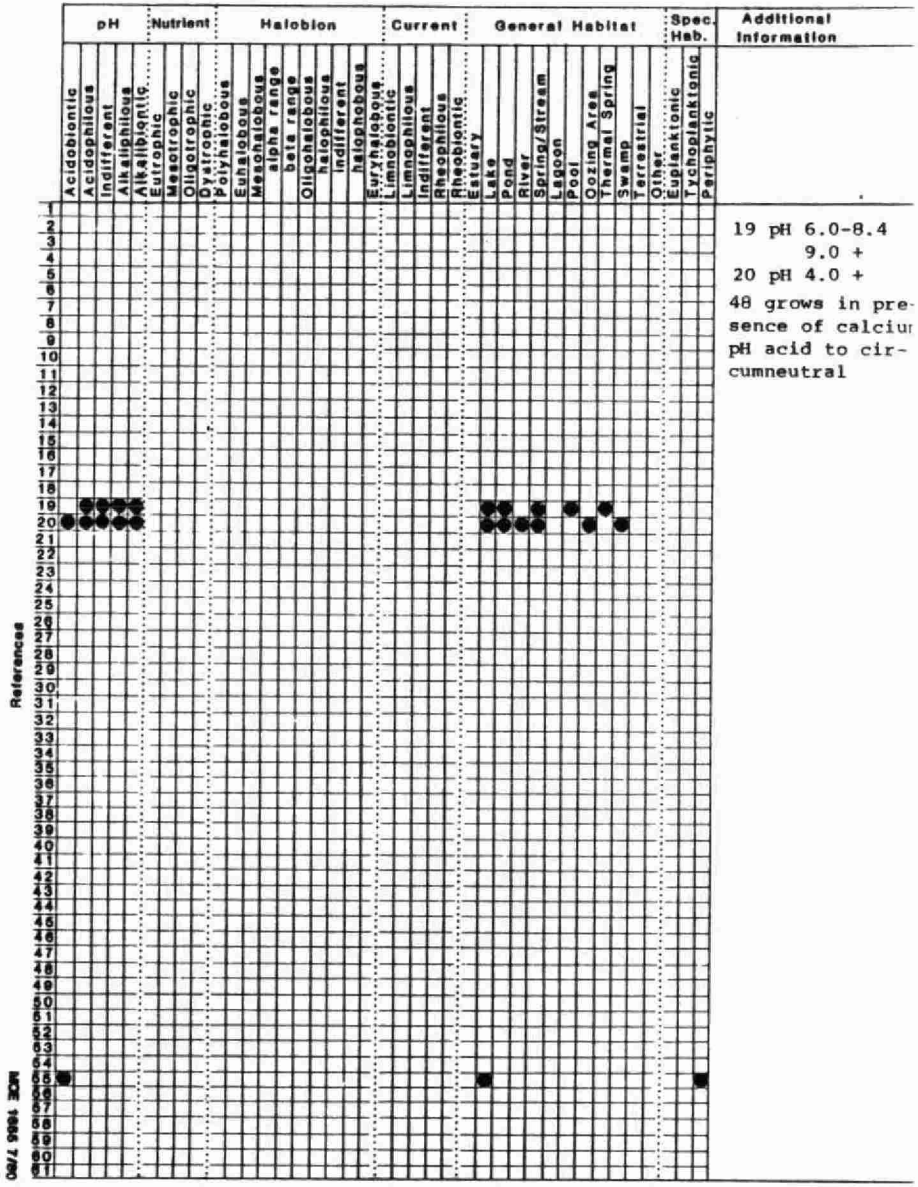
References

MOE 1858 7/80

Ministry of the Environment
Ontario

Taxon Eunotia arcus Ehr. var. arcus

Synonym



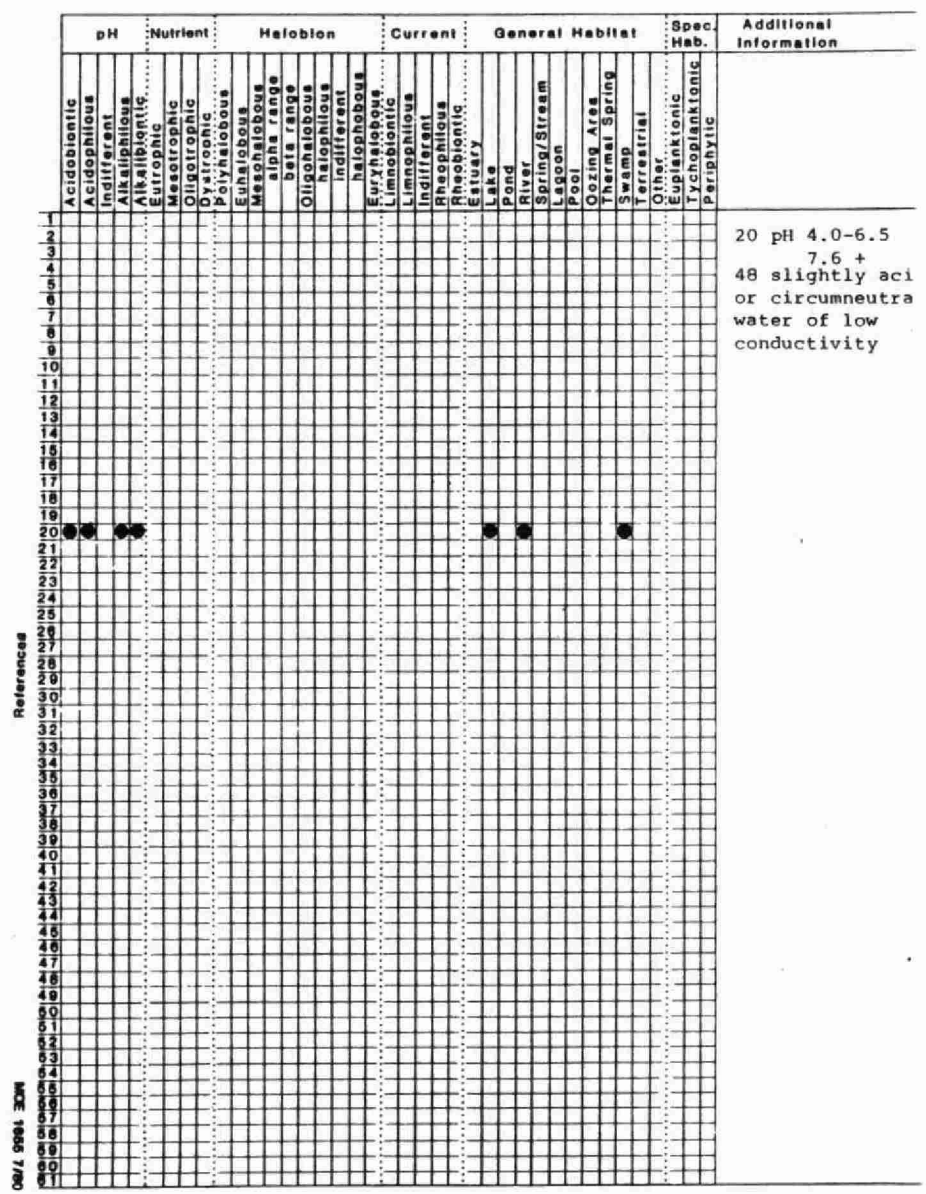
Additional Information

19 pH 6.0-8.4
9.0 +
20 pH 4.0 +
48 grows in presence of calciu
pH acid to circumneutral

Ministry of the Environment
Ontario

Taxon Eunotia arcus var. bidens Grun.

Synonym



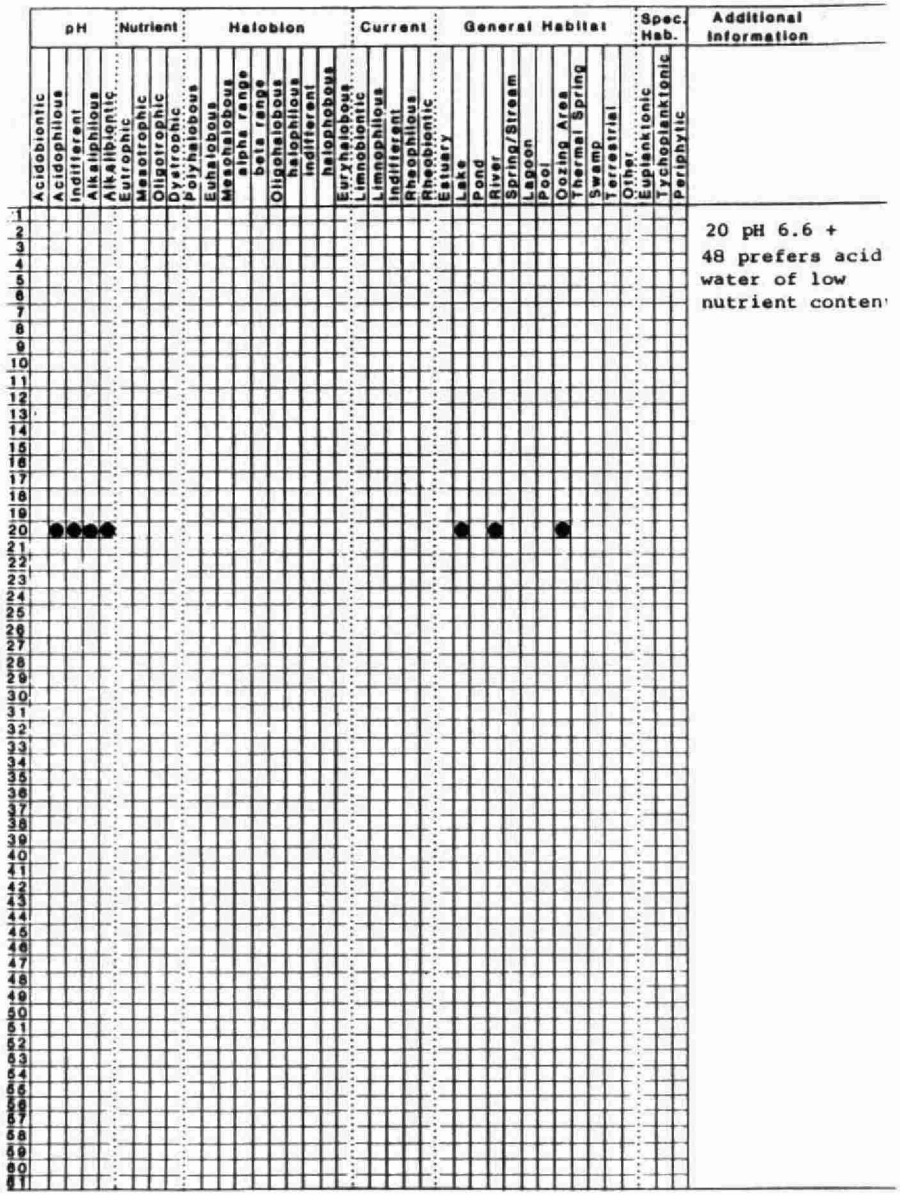
Additional Information

20 pH 4.0-6.5
7.6 +
48 slightly aci
or circumneutra
water of low
conductivity

Ministry of the Environment
Ontario

Taxon Eunotia arcus var. fallax Hust.

Synonym

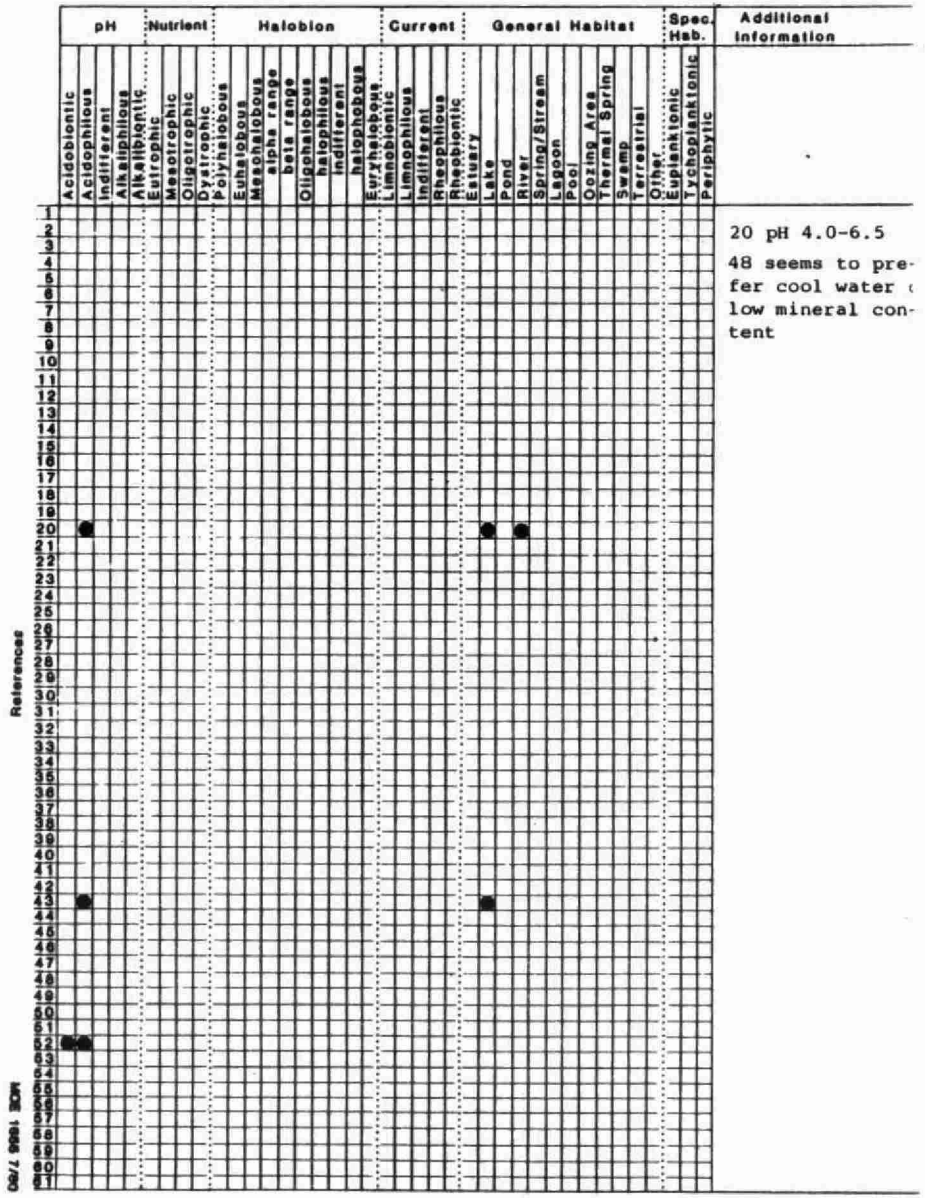


20 pH 6.6 +
48 prefers acid water of low nutrient conten

Ministry of the Environment
Ontario

Taxon Eunotia bactriana Ehr.

Synonym

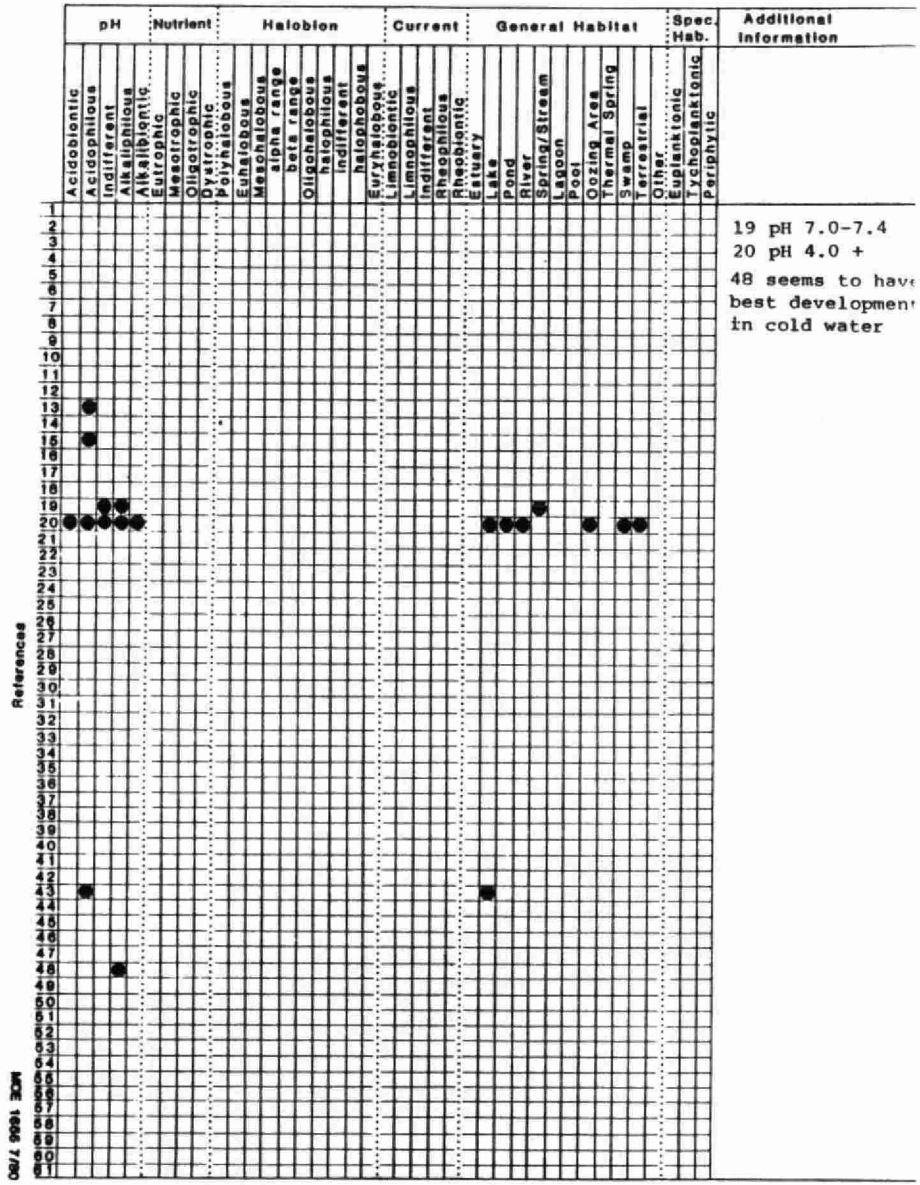


20 pH 4.0-6.5
48 seems to prefer cool water low mineral content

Ministry of the Environment
Ontario

Taxon Eunotia bidentula W. Sm.

Synonym

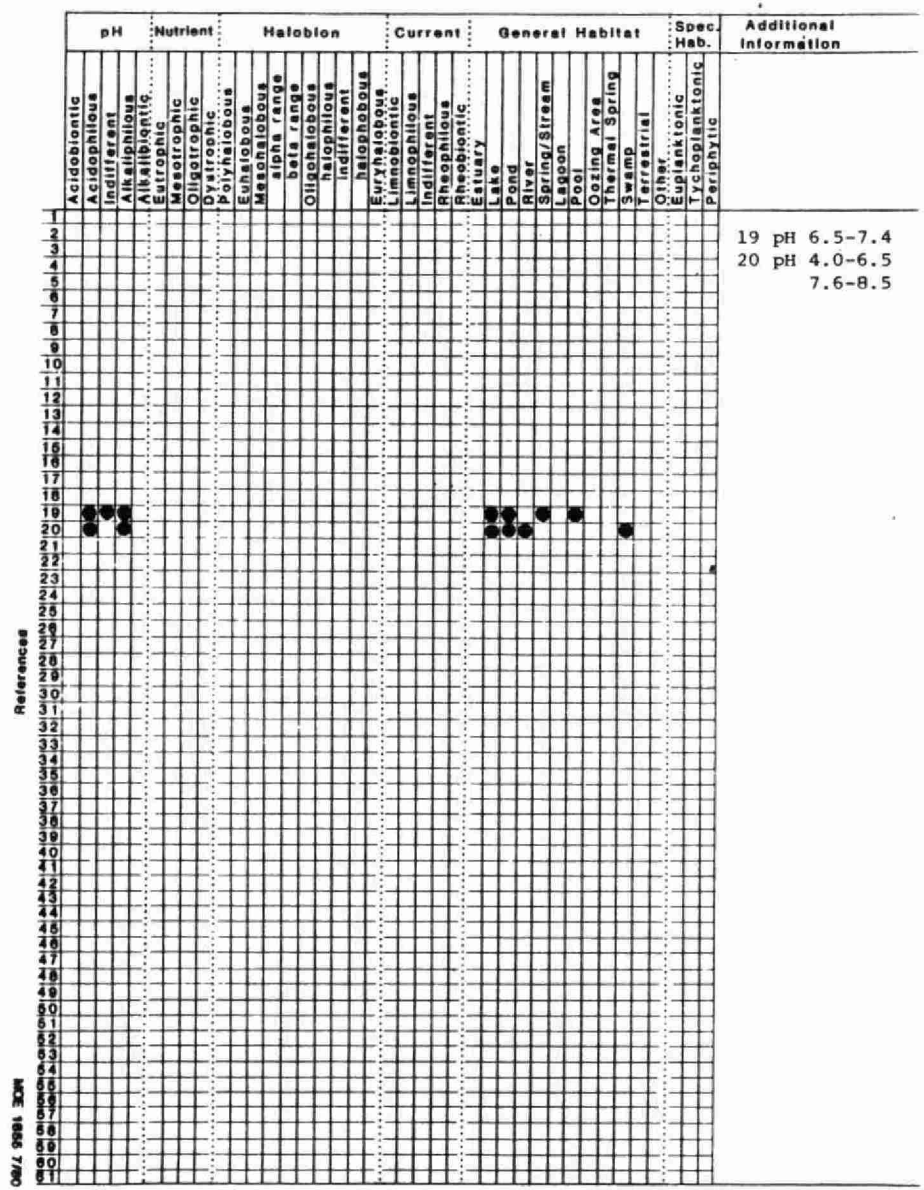


19 pH 7.0-7.4
20 pH 4.0 +
48 seems to have best development in cold water

Ministry of the Environment
Ontario

Taxon Eunotia bigibba Kutz. var. bigibba

Synonym



19 pH 6.5-7.4
20 pH 4.0-6.5
7.6-8.5

Ministry of the Environment
Ontario

Taxon Eunotia bigibba var. pumila Grun.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
19	●		●		●																				●●													
20	●●		●																						●													

19 pH 6.0-6.9
8.0-8.4
20 pH 4.8,6.3

MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Eunotia crista-galli Cl.

Synonym

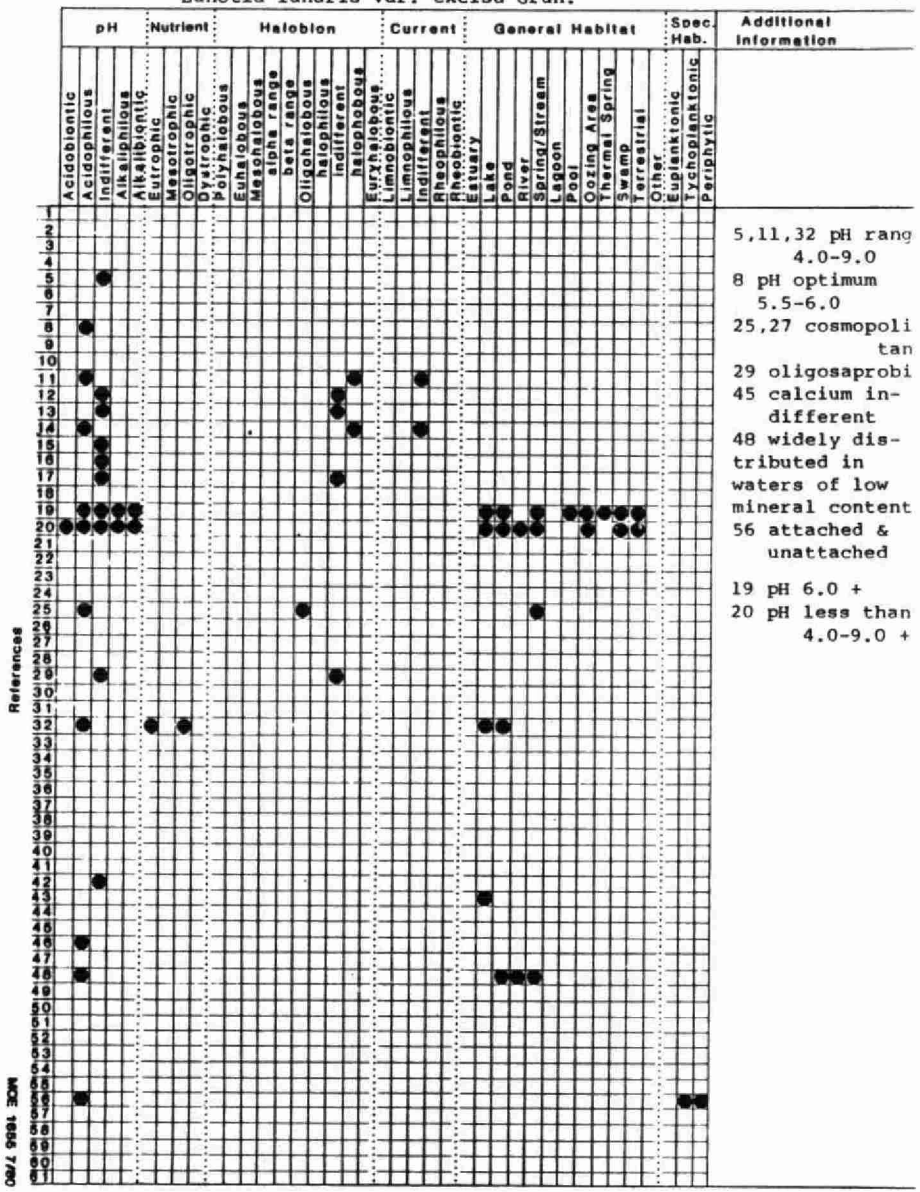
References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
13	●	●																																					
16	●	●																																					
43	●	●																							●													

MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Eunotia curvata (Kutz.) Lager.

Synonym Eunotia lunaris (Ehr.) Grun./ Eunotia lunaris var. bilunaris Grun.
Eunotia lunaris var. excisa Grun.



5,11,32 pH rang 4.0-9.0
8 pH optimum 5.5-6.0
25,27 cosmopolitan
29 oligosaprobi
45 calcium indifferent
48 widely distributed in waters of low mineral content
56 attached & unattached

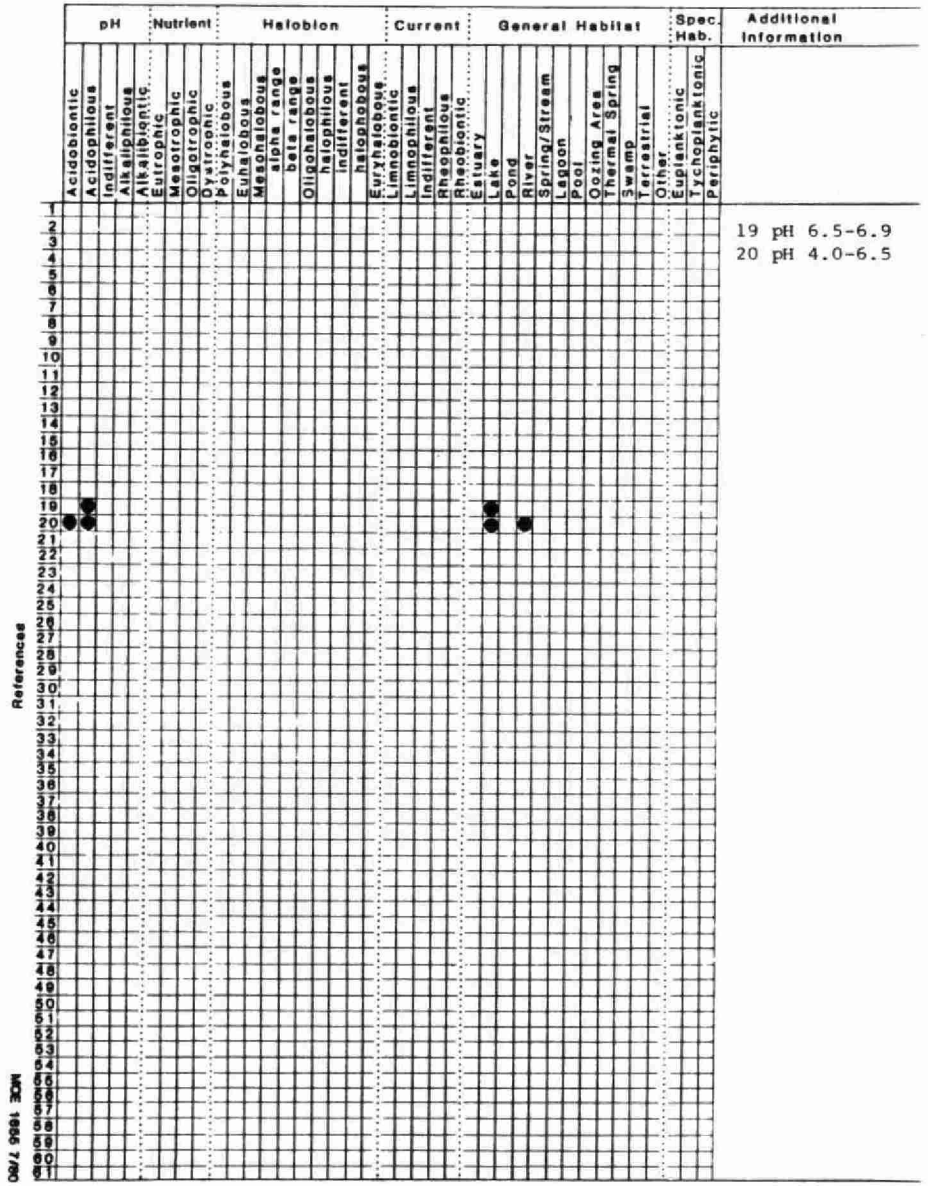
19 pH 6.0 +
20 pH less than 4.0-9.0 +

MOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Eunotia denticulata (Breb.) Rabh.

Synonym



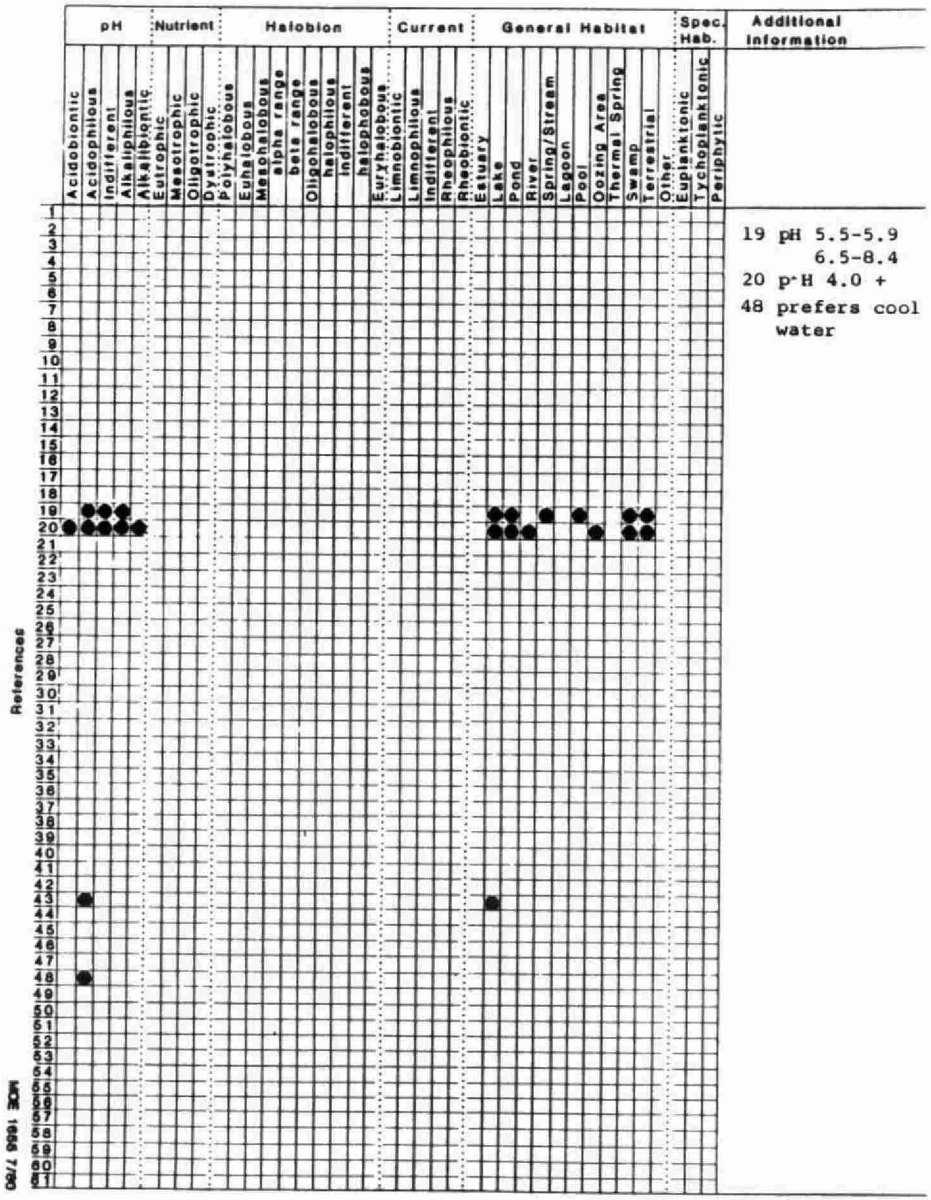
19 pH 6.5-6.9
20 pH 4.0-6.5

MOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Eunotia diodon Ehr.

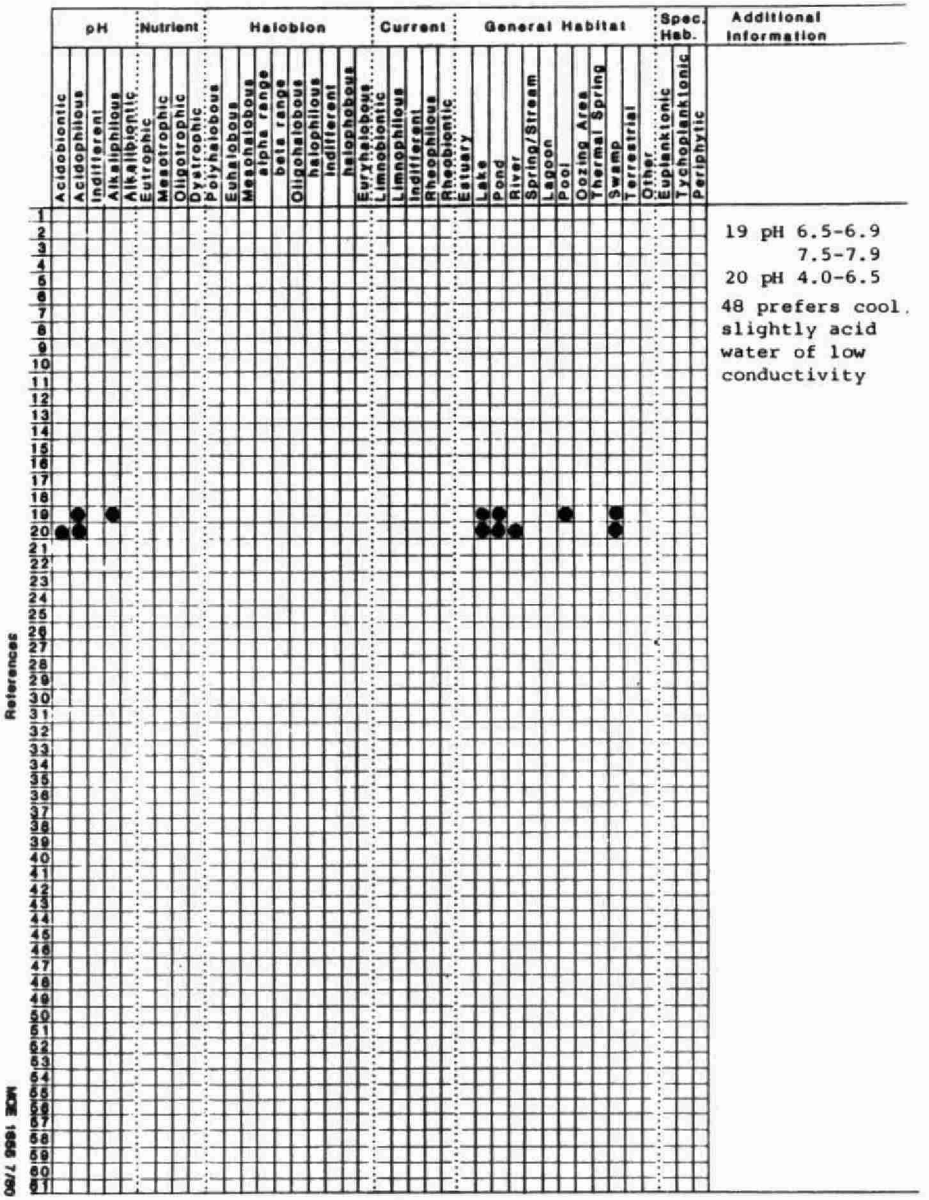
Synonym Eunotia diodon f. minor Grun.



Ministry of the Environment
Ontario

Taxon Eunotia elegans Østr.

Synonym



Ministry of the Environment
Ontario

Taxon Eunotia exigua var. bidens Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19																																								19 pH 7.5-7.9
20		•		•																						•			•										20 pH 6.5

MNR 1986 7/90

Ministry of the Environment
Ontario

Taxon Eunotia exigua var. compacta Hust.

Synonym

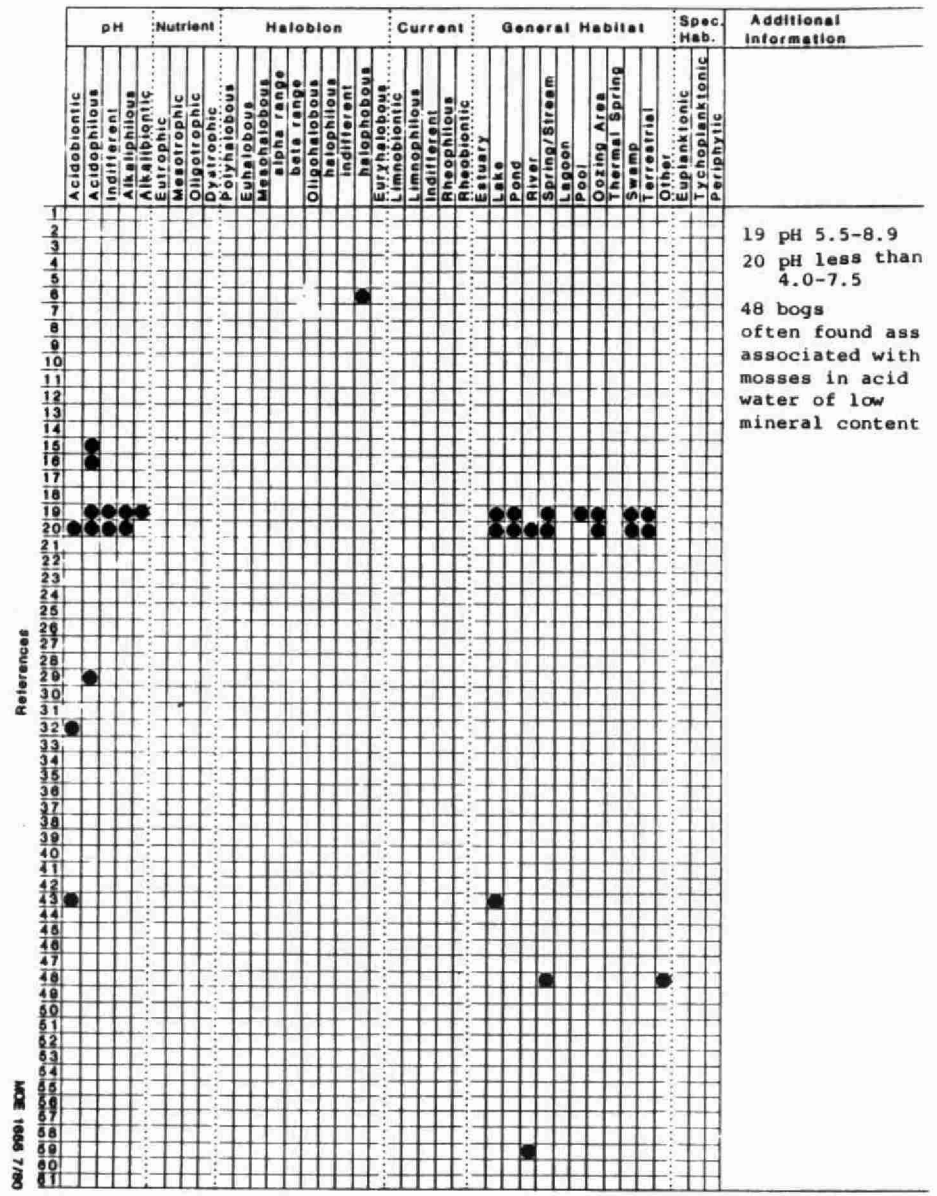
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19		•																							•			•		•										20 bog
20																									•										•				19 pH 6.0-6.9

MNR 1986 7/90

Ministry of the Environment
Ontario

Taxon Eunotia exigua (Breb. ex Kutz.) Rabh. var. exigua

Synonym Eunotia paludosa Grun.



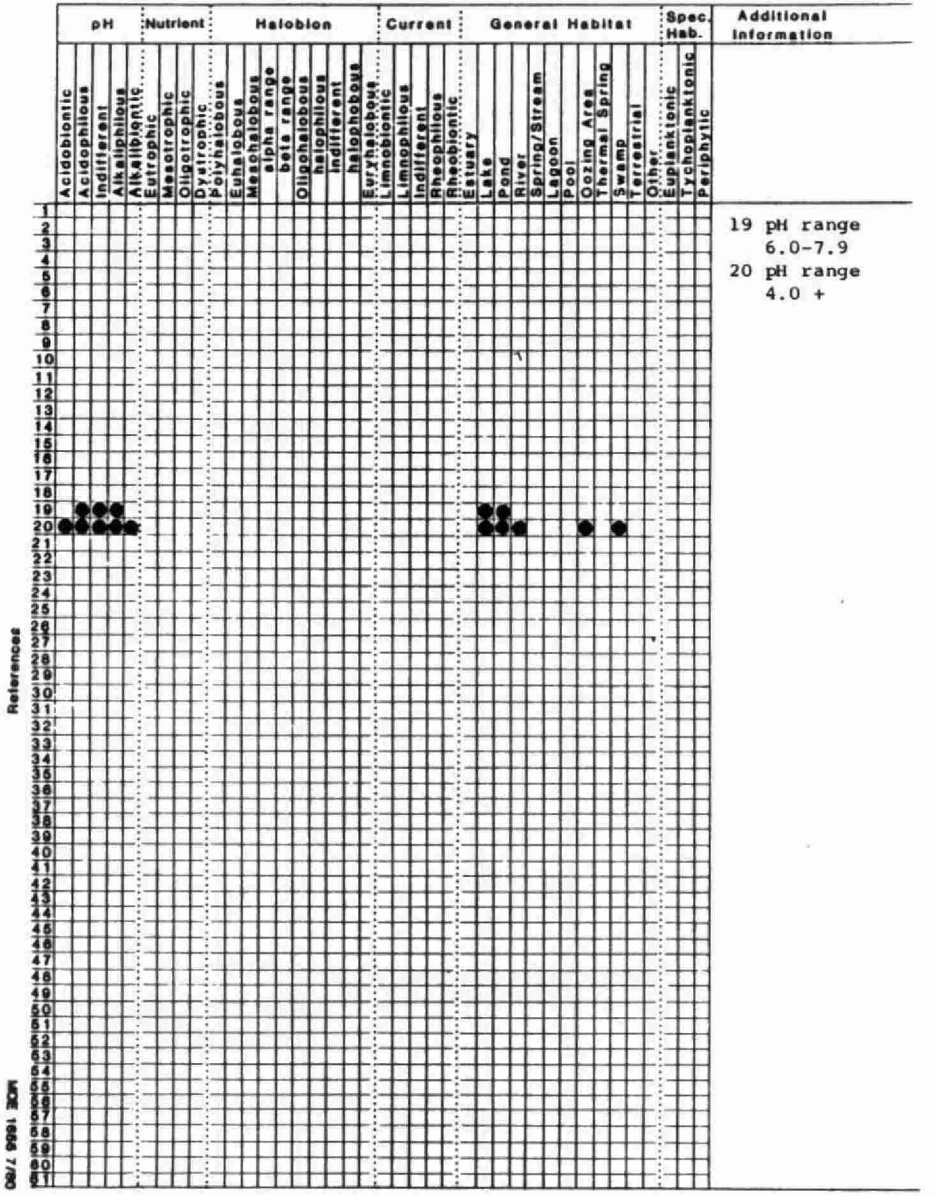
19 pH 5.5-8.9
20 pH less than 4.0-7.5

48 bogs often found ass associated with mosses in acid water of low mineral content

Ministry of the Environment
Ontario

Taxon Eunotia faba var. rhomboidea Foged

Synonym

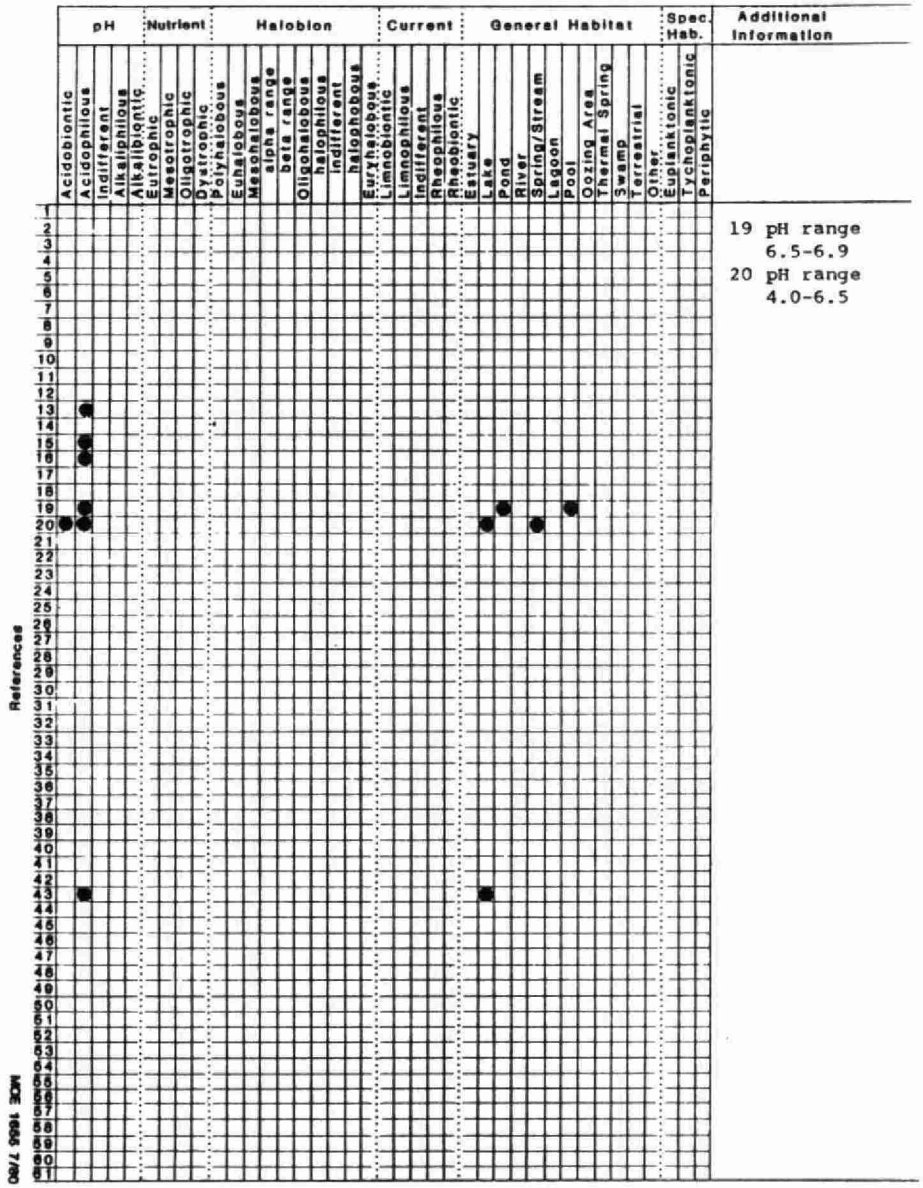


19 pH range 6.0-7.9
20 pH range 4.0 +

Ministry of the Environment
Ontario

Taxon Eunotia fallax Cl.

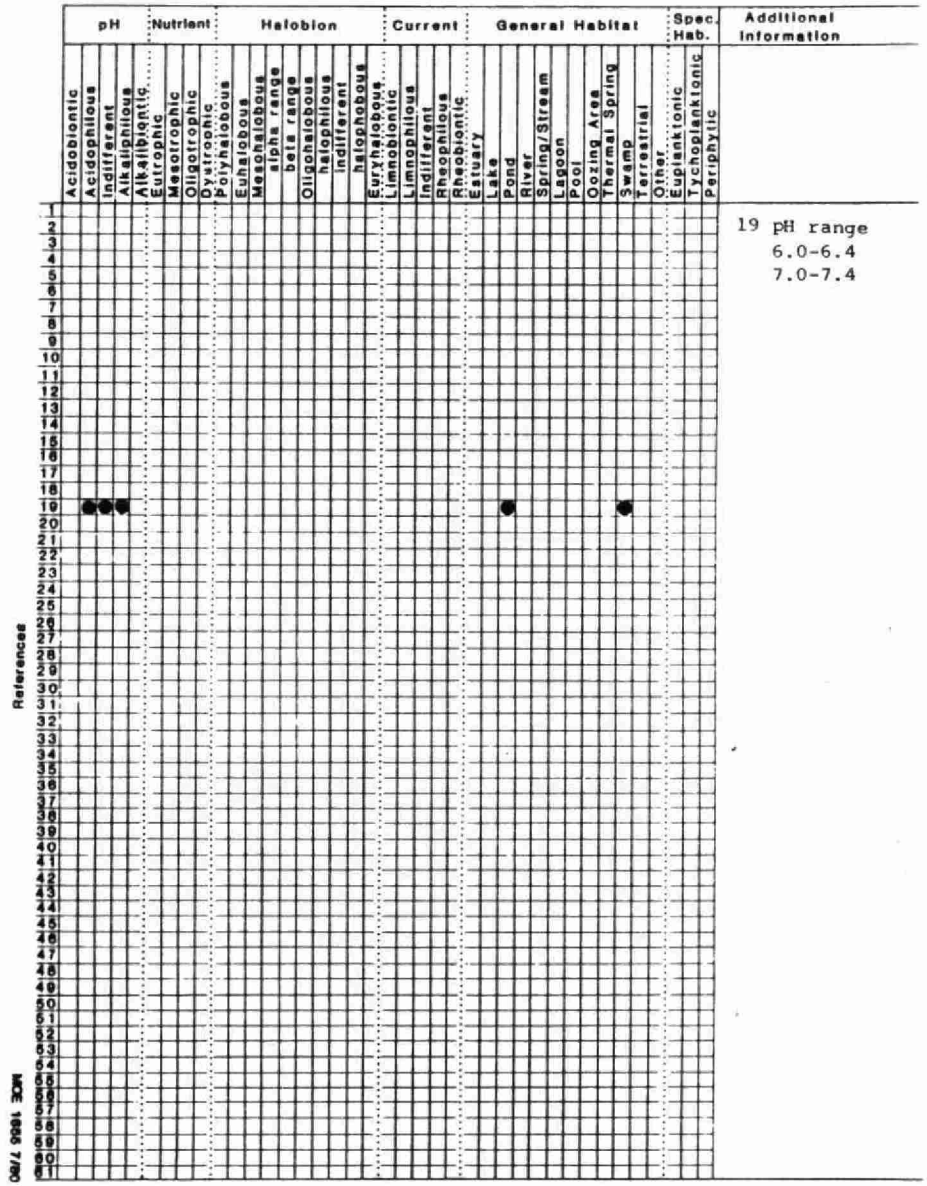
Synonym



Ministry of the Environment
Ontario

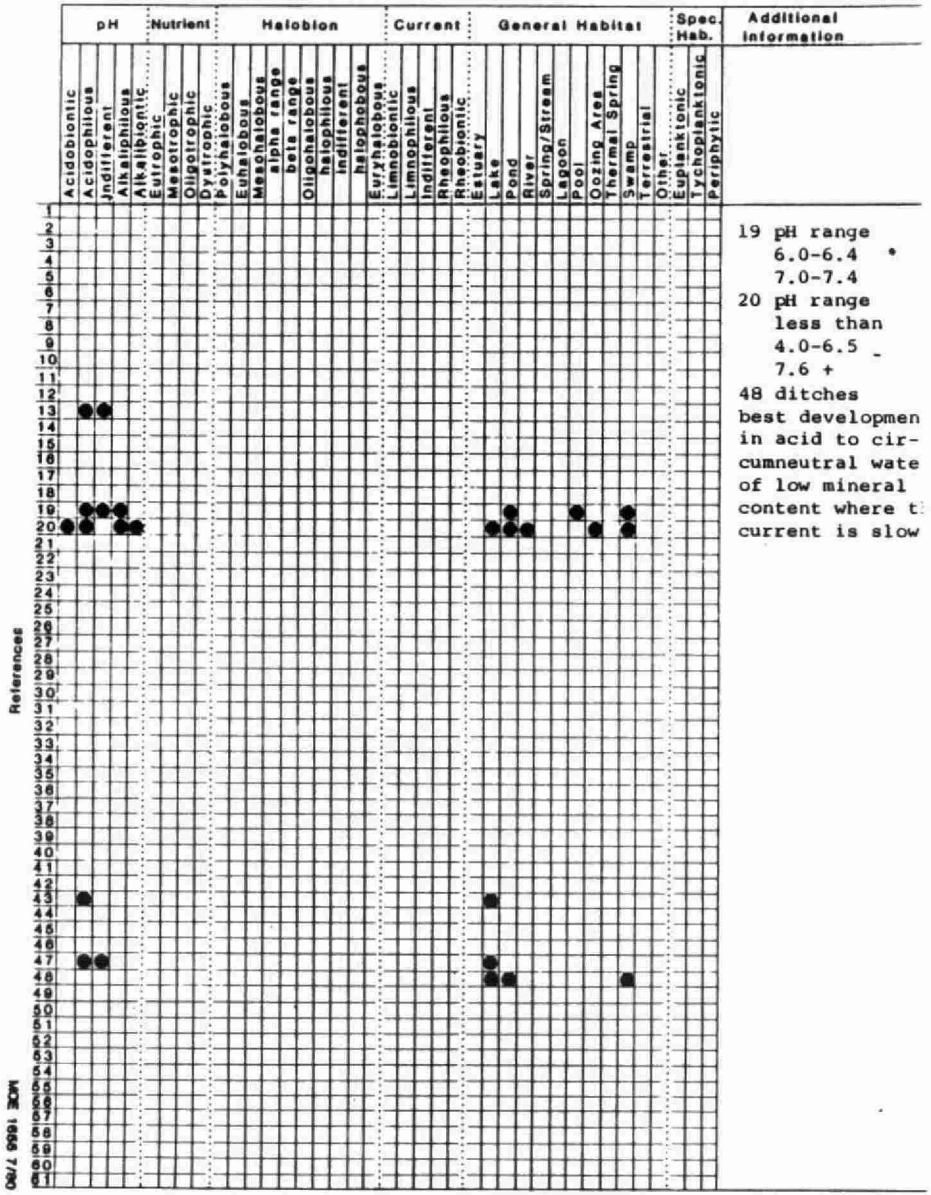
Taxon Eunotia flexuosa var. eurycephala Grun.

Synonym



Taxon Eunotia flexuosa Breb. ex Kutz. var. flexuosa

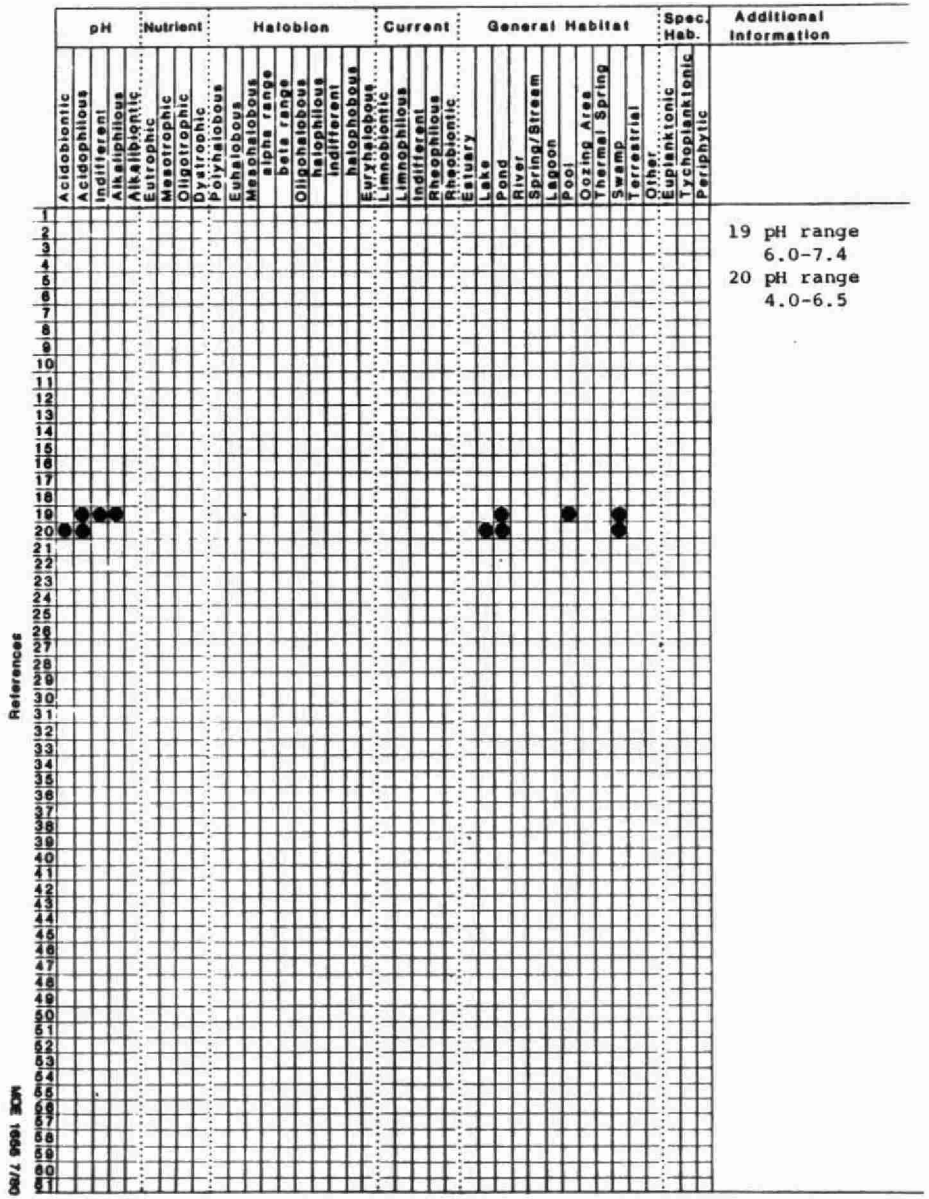
Synonym



19 pH range
6.0-6.4 •
7.0-7.4
20 pH range
less than
4.0-6.5 -
7.6 +
48 ditches
best developmen
in acid to cir-
cumneutral wate
of low mineral
content where t
current is slow

Taxon Eunotia flexuosa var. pachycephala Grun.

Synonym

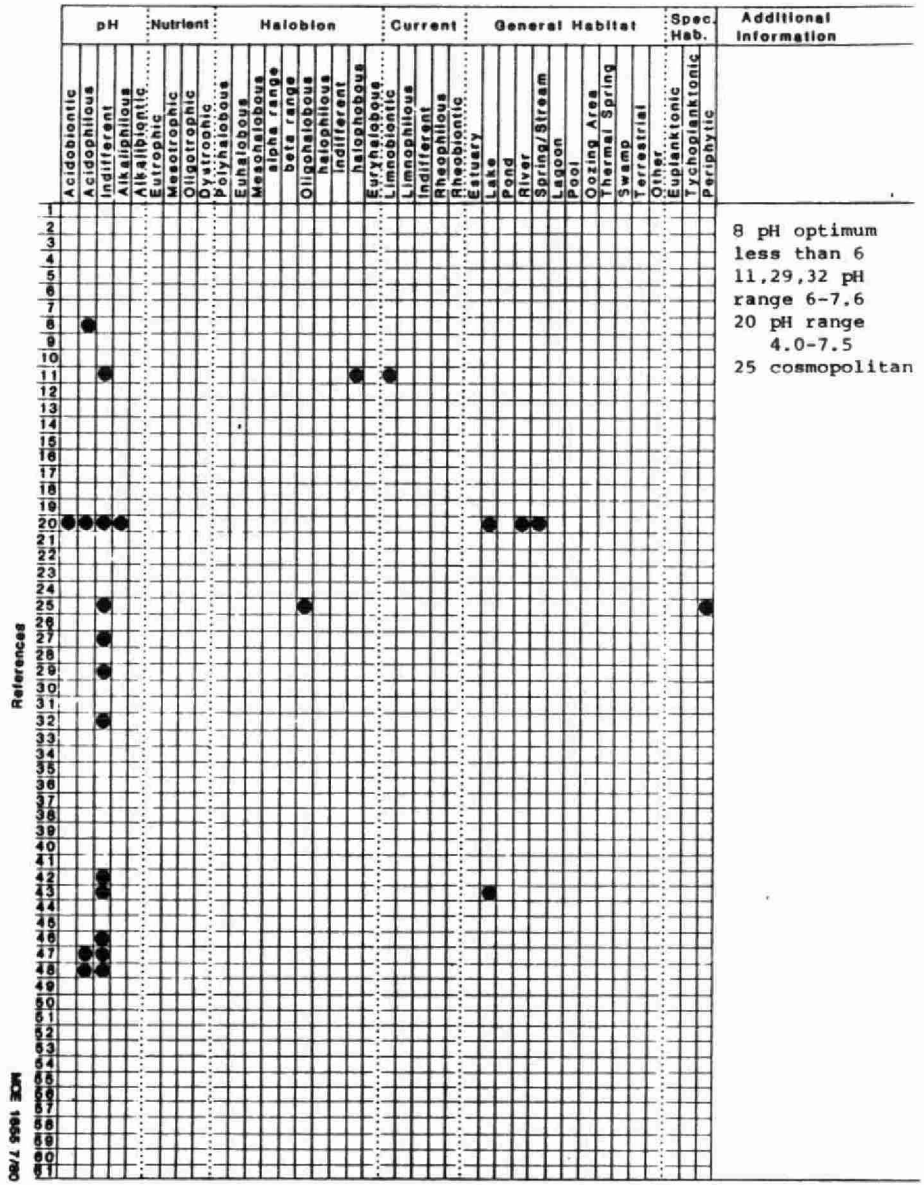


19 pH range
6.0-7.4
20 pH range
4.0-6.5

Ministry of the Environment
Ontario

Taxon Eunotia formica Ehr.

Synonym

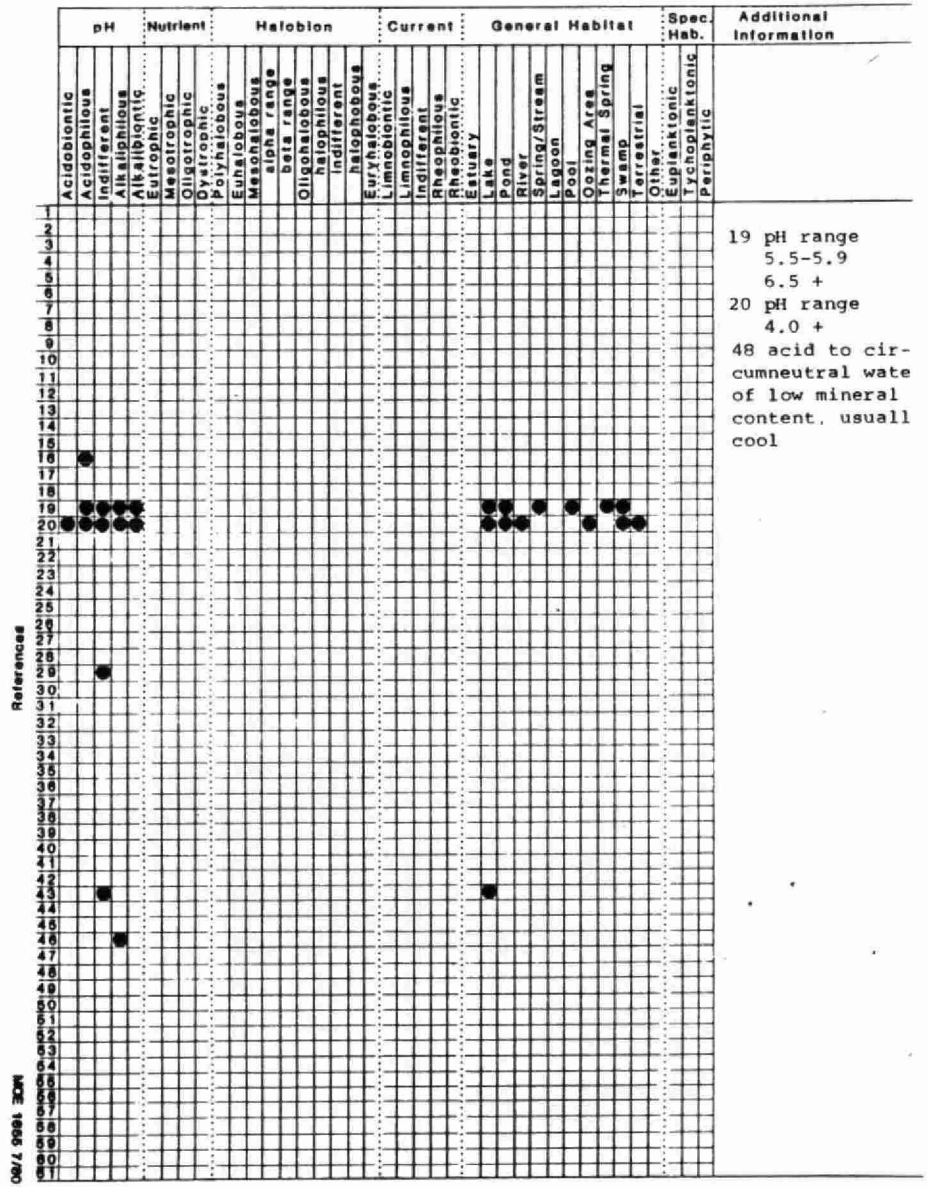


8 pH optimum
less than 6
11,29,32 pH
range 6-7,6
20 pH range
4.0-7.5
25 cosmopolitan

Ministry of the Environment
Ontario

Taxon Eunotia glacialis Meist.

Synonym Eunotia gracilis (Ehr.) Rabh.

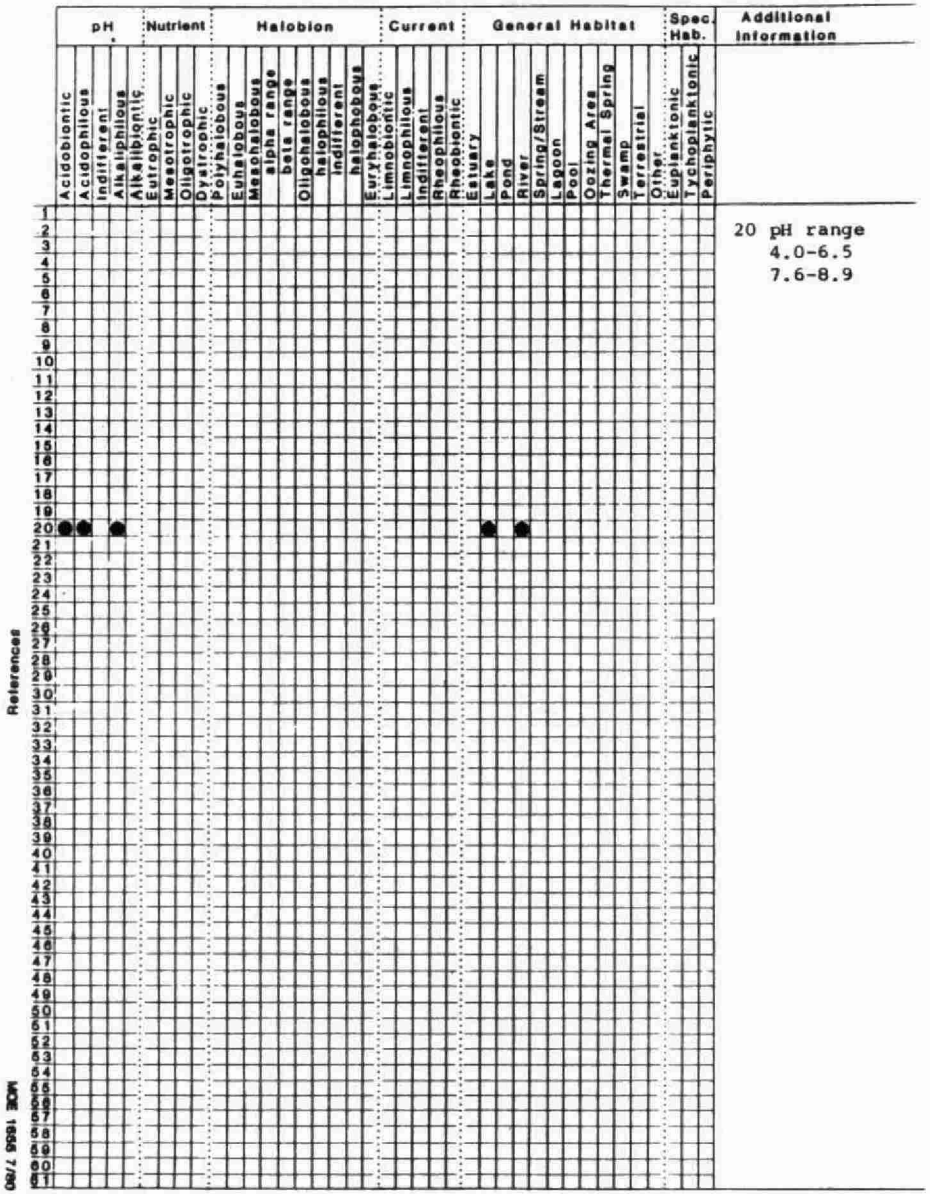


19 pH range
5.5-5.9
6.5 +
20 pH range
4.0 +
48 acid to circumneutral wate of low mineral content, usuall cool

Ministry of the Environment
Ontario

Taxon Eunotia iatriaensis Foged

Synonym

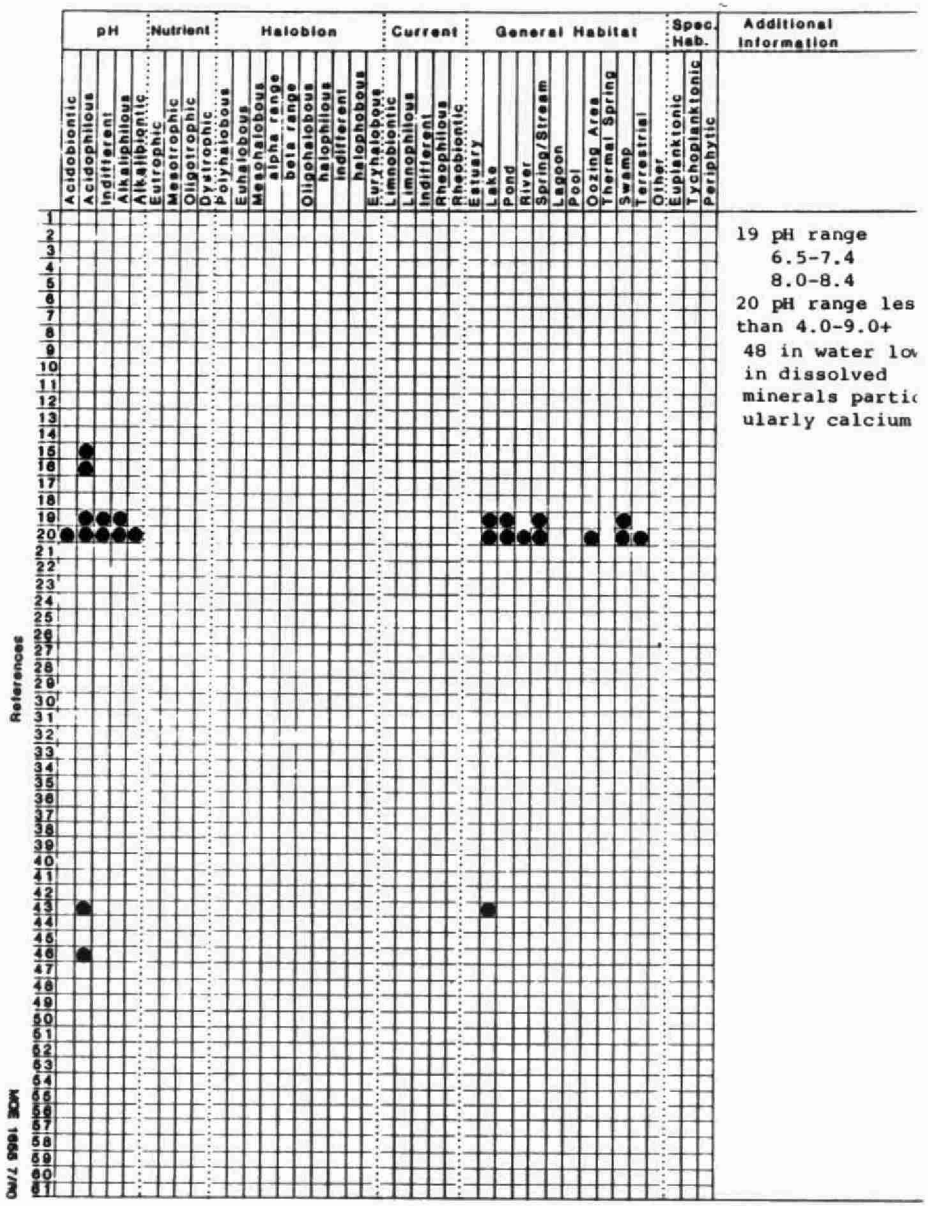


20 pH range
4.0-6.5
7.6-8.9

Ministry of the Environment
Ontario

Taxon Eunotia incisa W. Sm. ex Greg.

Synonym Eunotia veneris (Kutz.)DeT.

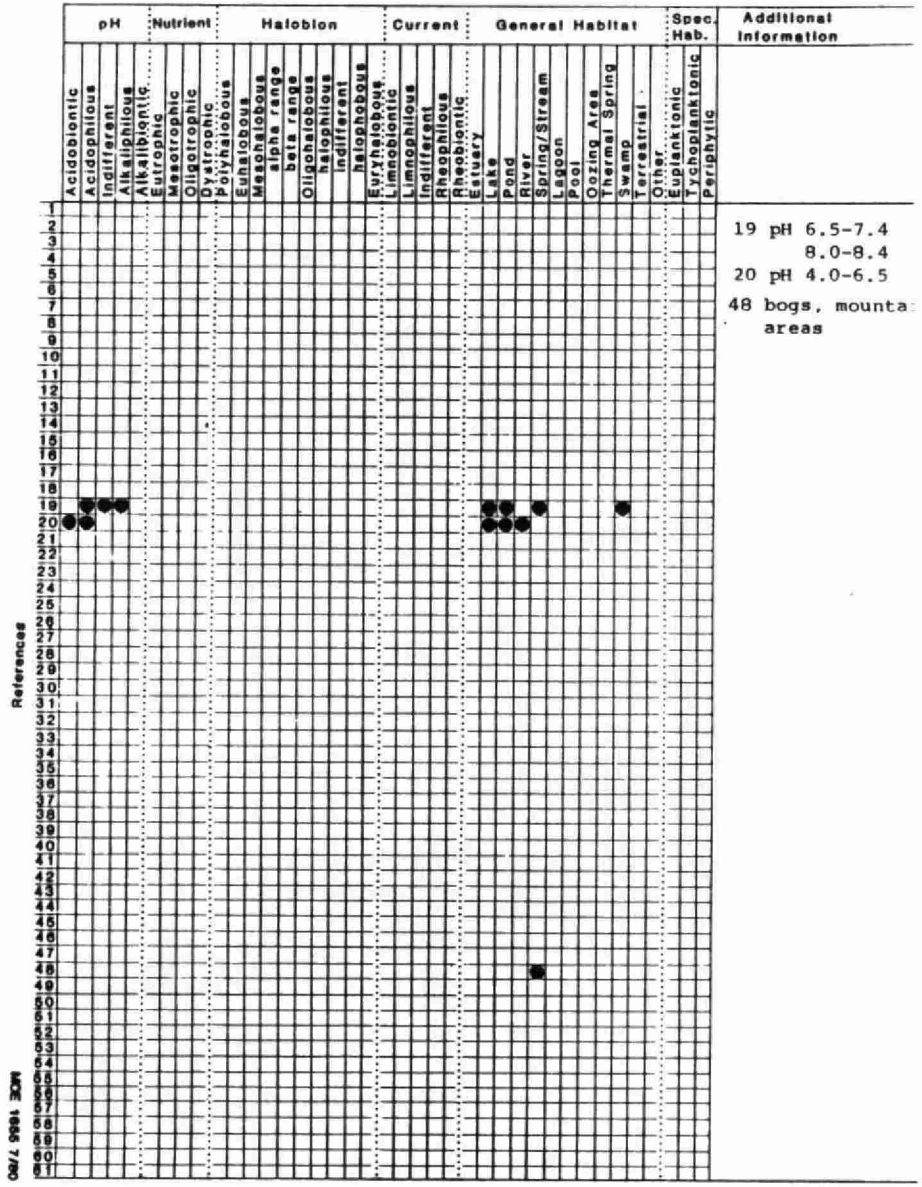


19 pH range
6.5-7.4
8.0-8.4
20 pH range les
than 4.0-9.0+
48 in water lo
in dissolved
minerals parti
ularly calcium

Ministry of the Environment
Ontario

Taxon Eunotia lapponica Grun. ex Cl.

Synonym

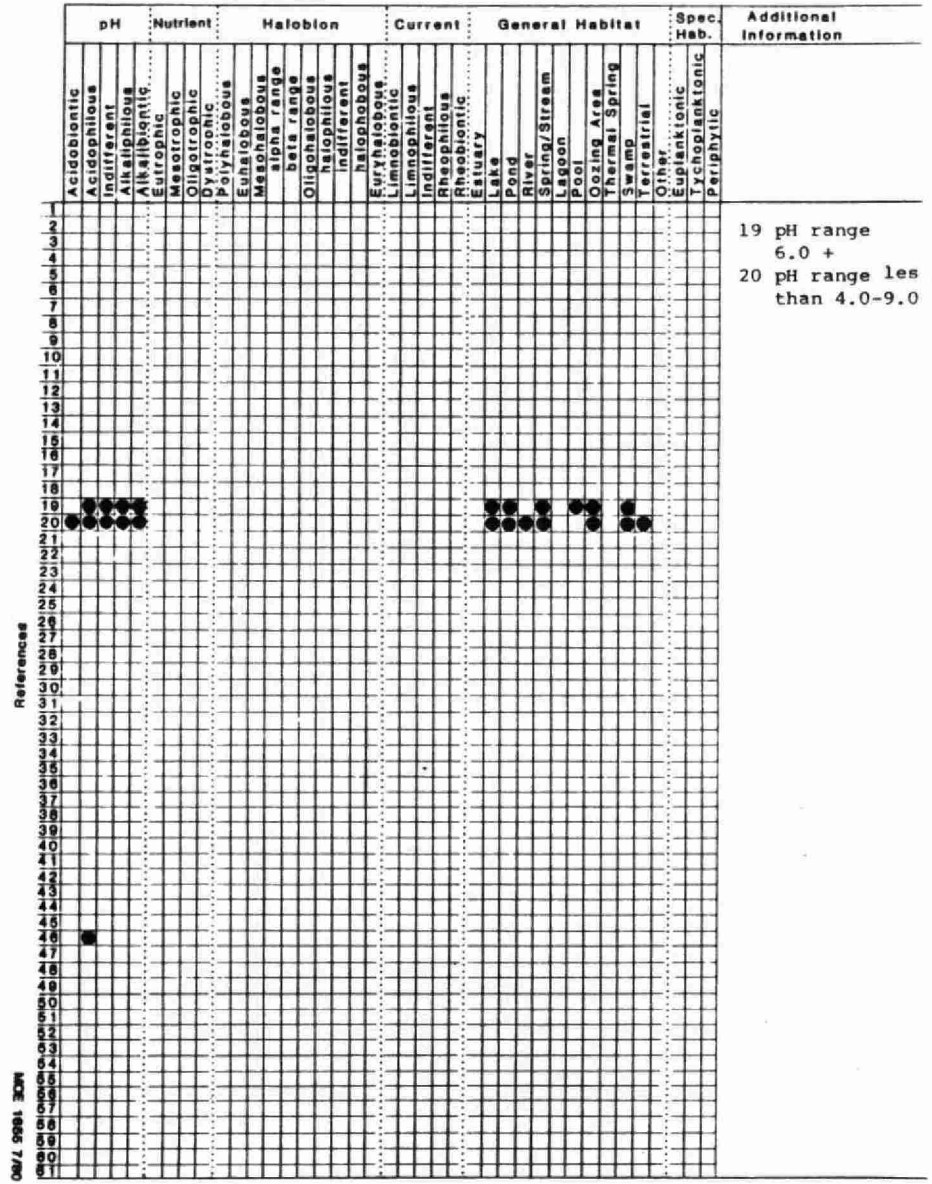


19 pH 6.5-7.4
8.0-8.4
20 pH 4.0-6.5
48 bogs, mounta
areas

Ministry of the Environment
Ontario

Taxon Eunotia lunaris var. subarcuata (Naeg.) Grun.

Synonym



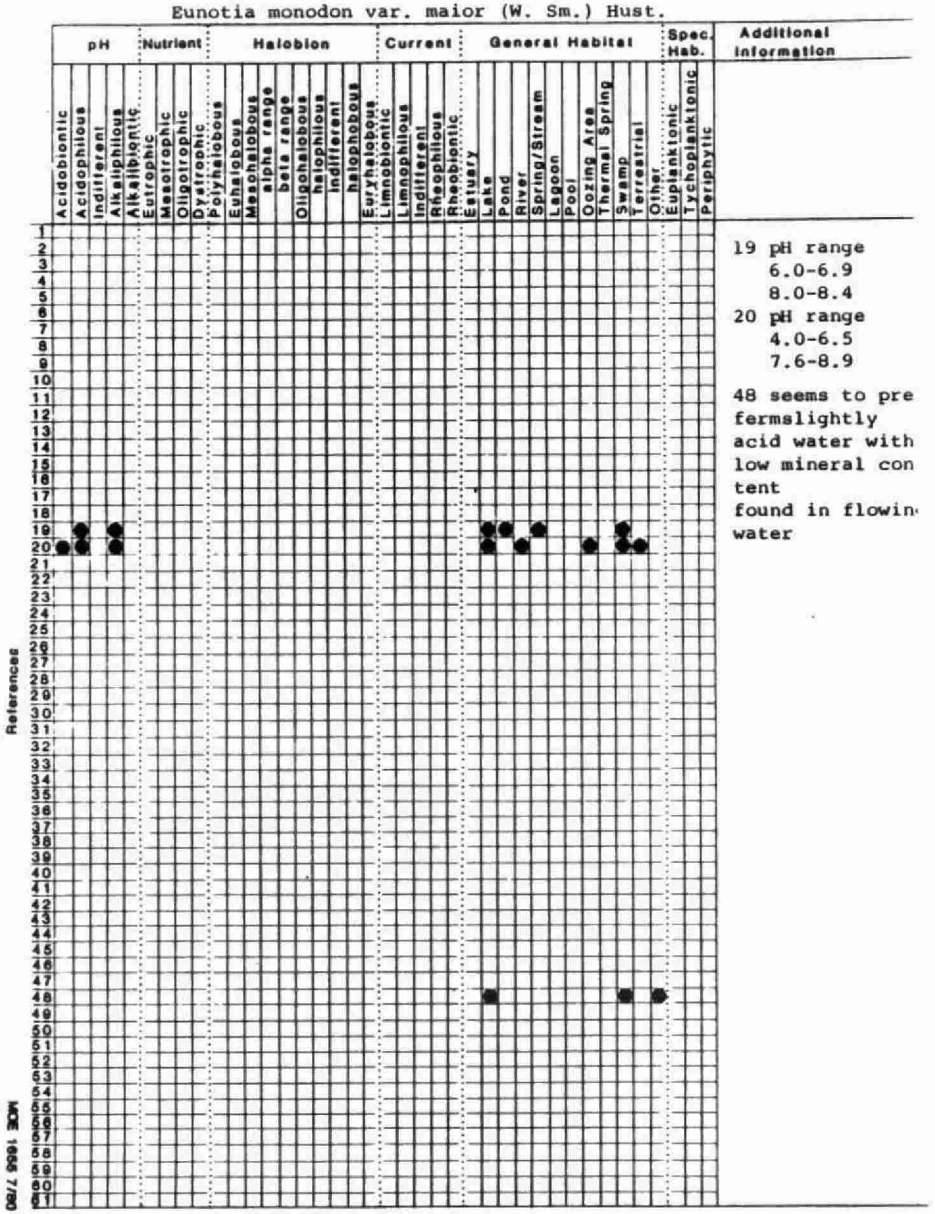
19 pH range
6.0 +
20 pH range les
than 4.0-9.0

Ministry of the Environment
Ontario

Taxon Eunotia maior (W. Sm.) Rabh. var. maior

Synonym Eunotia majus (W. Sm.) Rabh.

Eunotia monodon var. maior (W. Sm.) Hust.



Additional information

19 pH range
6.0-6.9
8.0-8.4
20 pH range
4.0-6.5
7.6-8.9

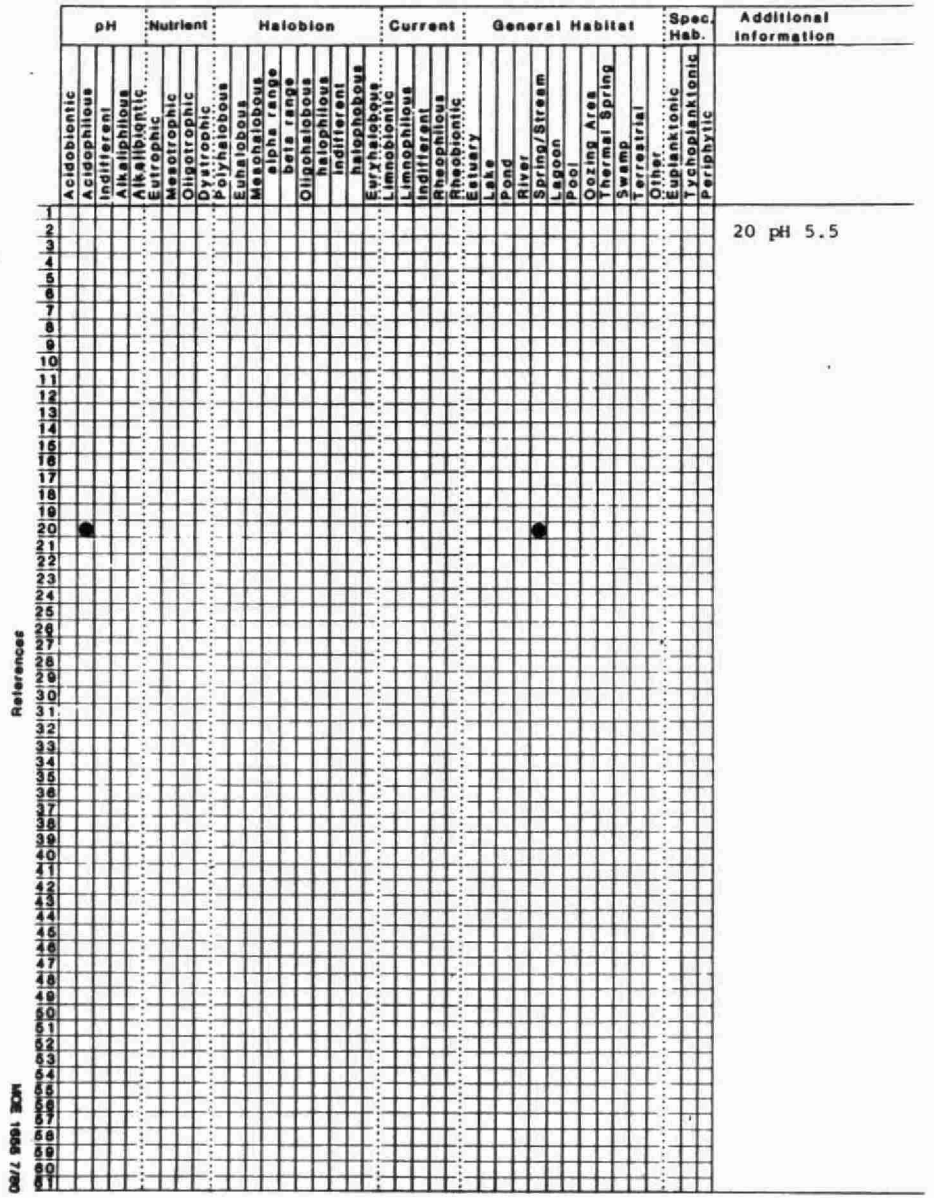
48 seems to pre fermslightly acid water with low mineral con tent found in flowin water

MOE 1666 7/80

Ministry of the Environment
Ontario

Taxon Eunotia maior var. scandia Cl.-Eul.

Synonym



Additional information

20 pH 5.5

MOE 1666 7/80

Ministry of the Environment
Ontario

Taxon Eunotia maior var. ventricosa Cl.

Synonym Eunotia stevensonii Boyer

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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20 pH 6.3

MDE 1986 7/80

Ministry of the Environment
Ontario

Taxon Eunotia meisteri var. bidens Hust.

Synonym

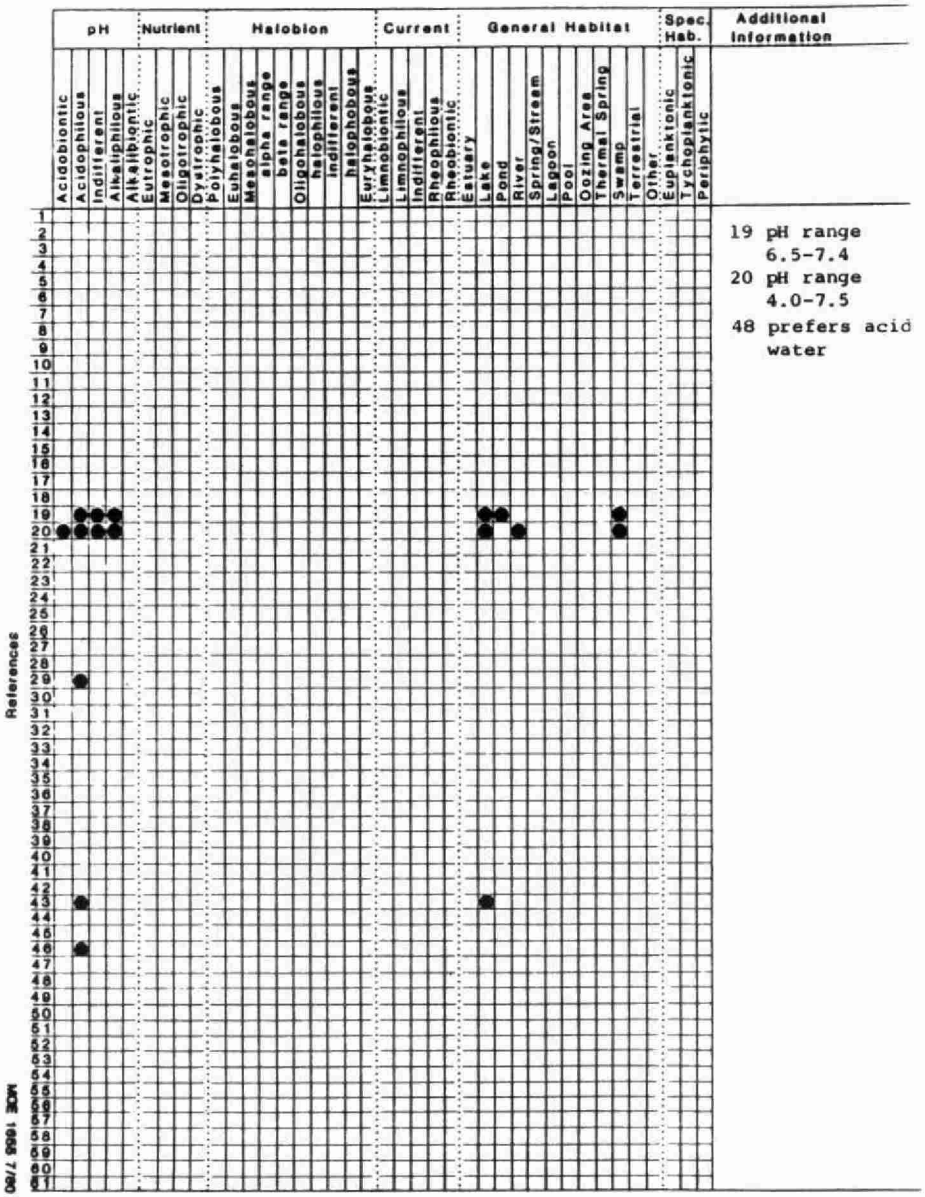
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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MDE 1986 7/80

Ministry of the Environment
Ontario

Taxon Eunotia meisteri Hust. var. meisteri

Synonym

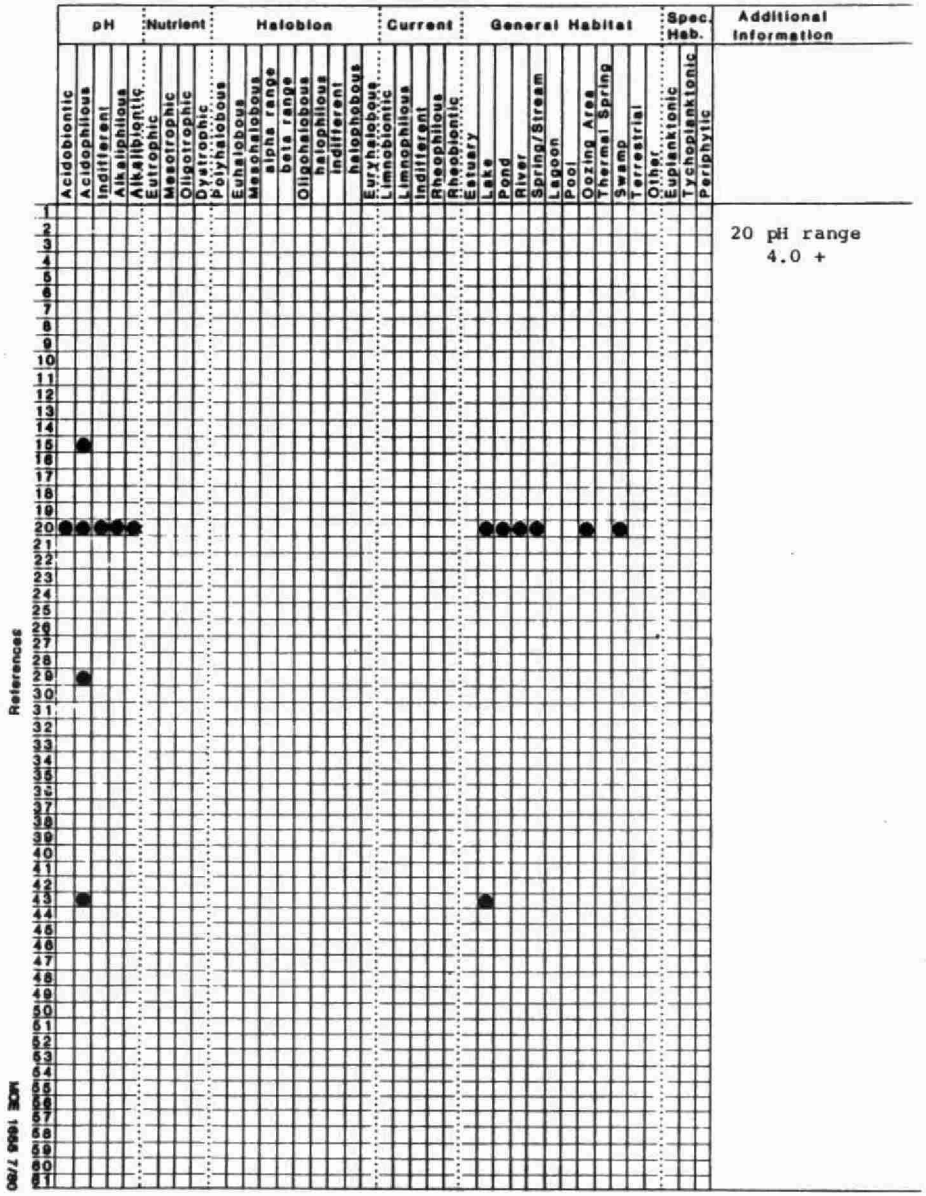


19 pH range 6.5-7.4
20 pH range 4.0-7.5
48 prefers acid water

Ministry of the Environment
Ontario

Taxon Eunotia monodon var. bidens (Greg.) W. Sm.

Synonym

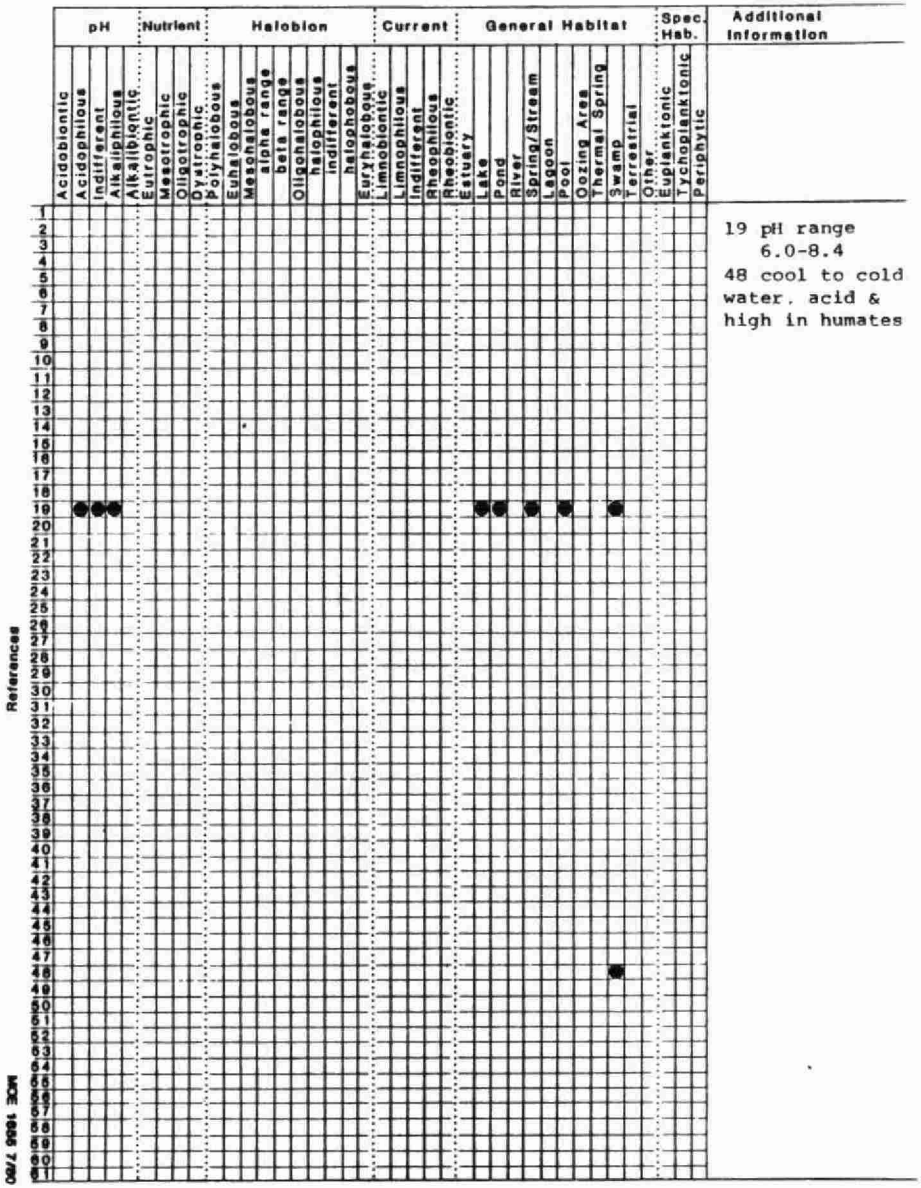


20 pH range 4.0 +

Ministry of the Environment
Ontario

Taxon Eunotia monodon Ehr. var. monodon

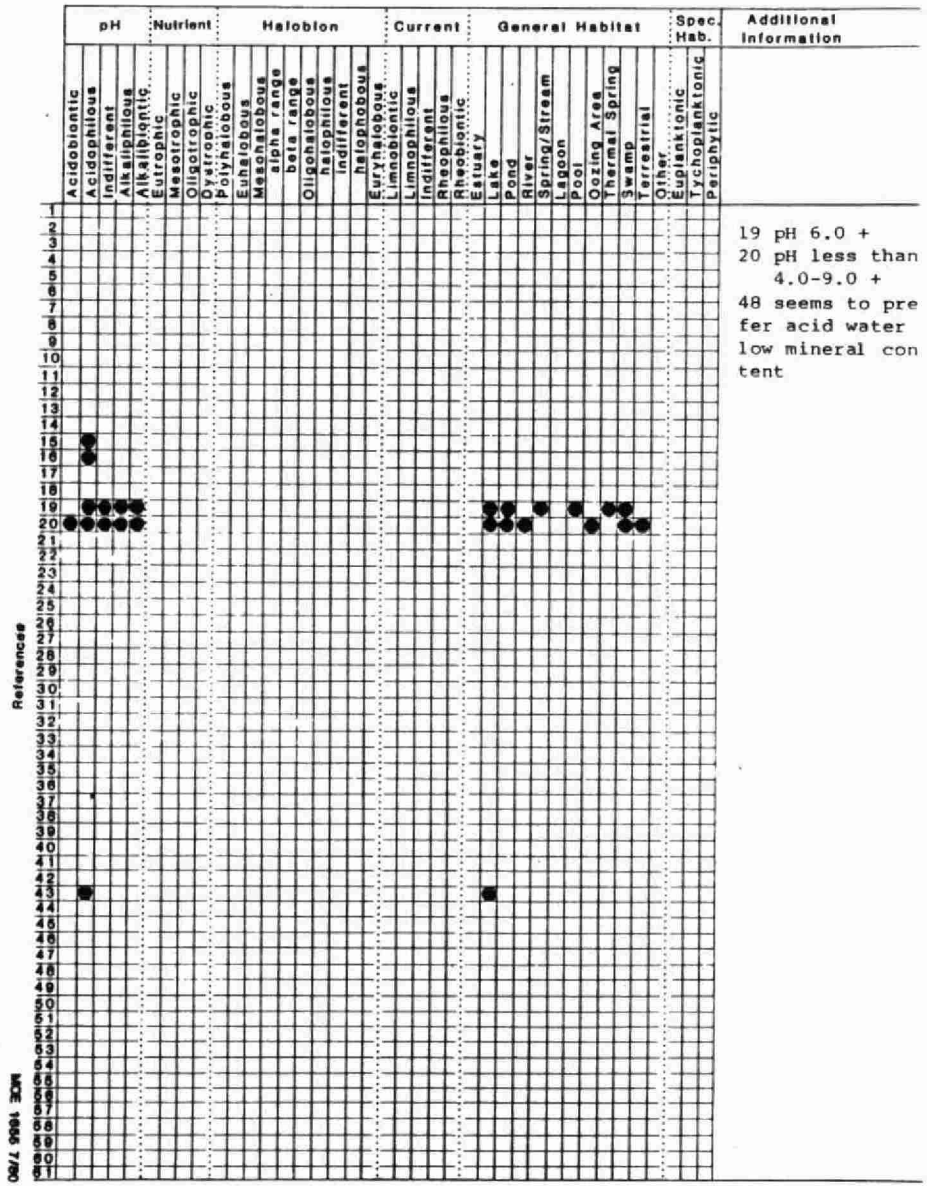
Synonym



Ministry of the Environment
Ontario

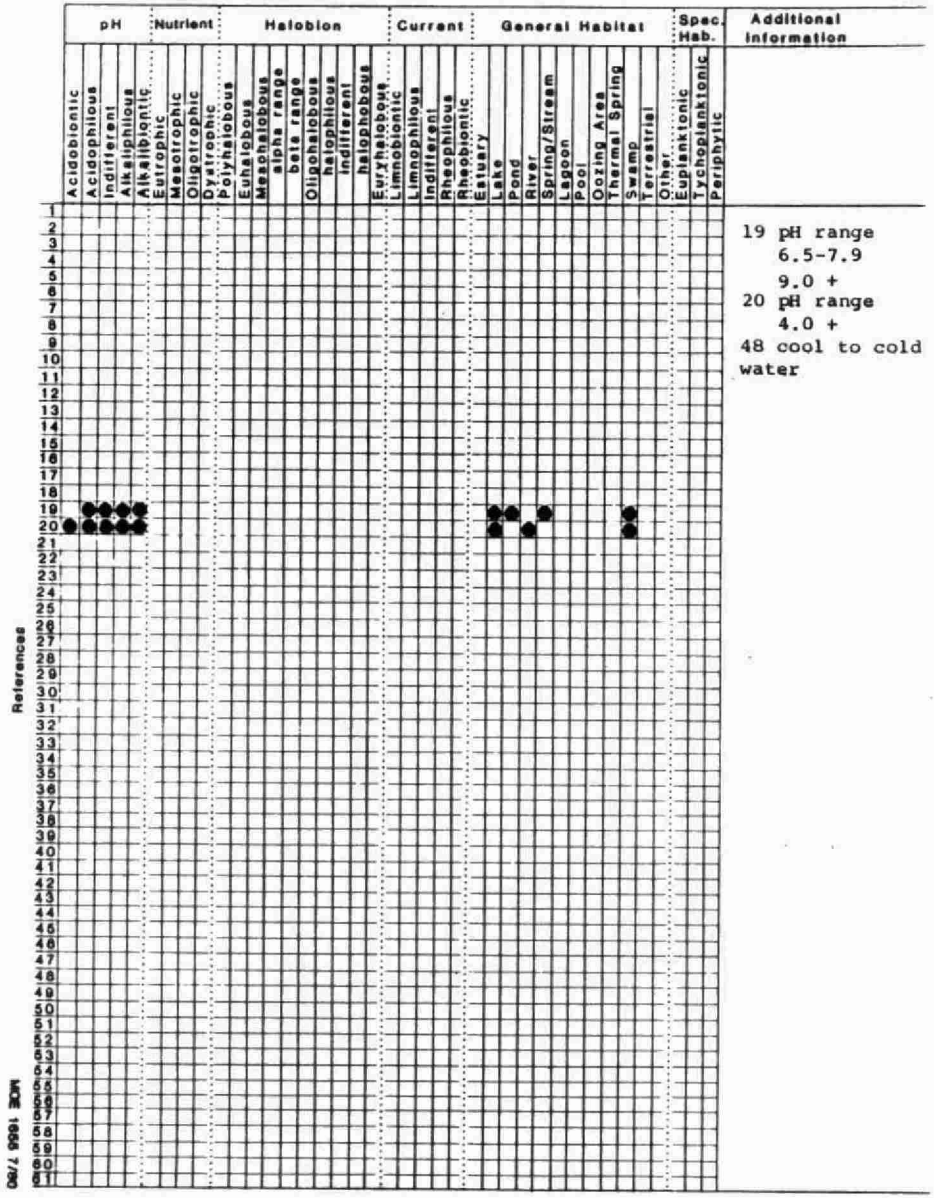
Taxon Eunotia naegelii Migula

Synonym Homonym: E. alpina Naeg.



Taxon Eunotia parallela Ehr.

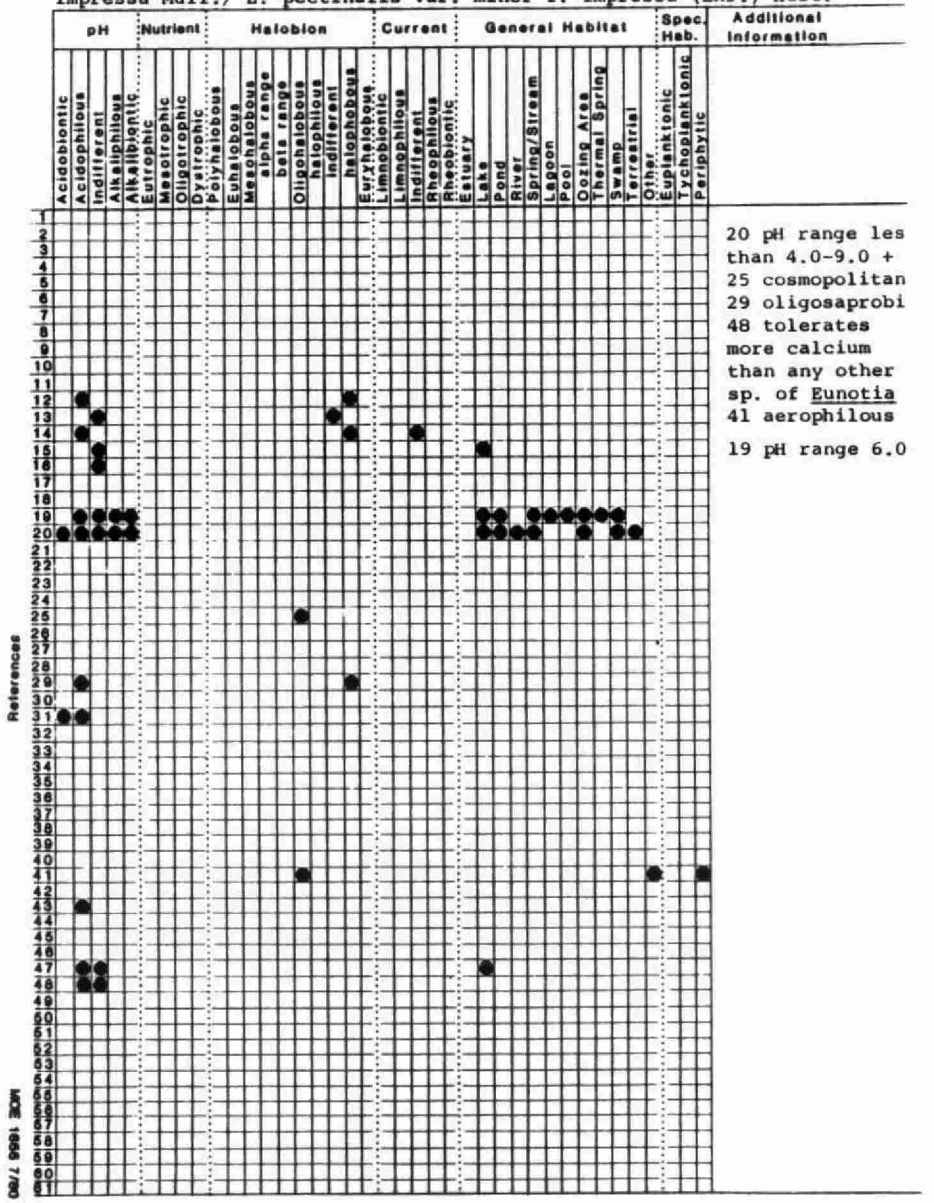
Synonym Eunotia angusta Ci.-Eul.



19 pH range 6.5-7.9 9.0 +
20 pH range 4.0 +
48 cool to cold water

Taxon Eunotia pectinalis var. minor (Kutz.) Rabh.

Synonym Eunotia pectinalis var. minus (Kutz.) Rabh./ E. pectinalis va impressa Mull./ E. pectinalis var. minor f. impressa (Ehr.) Hust.



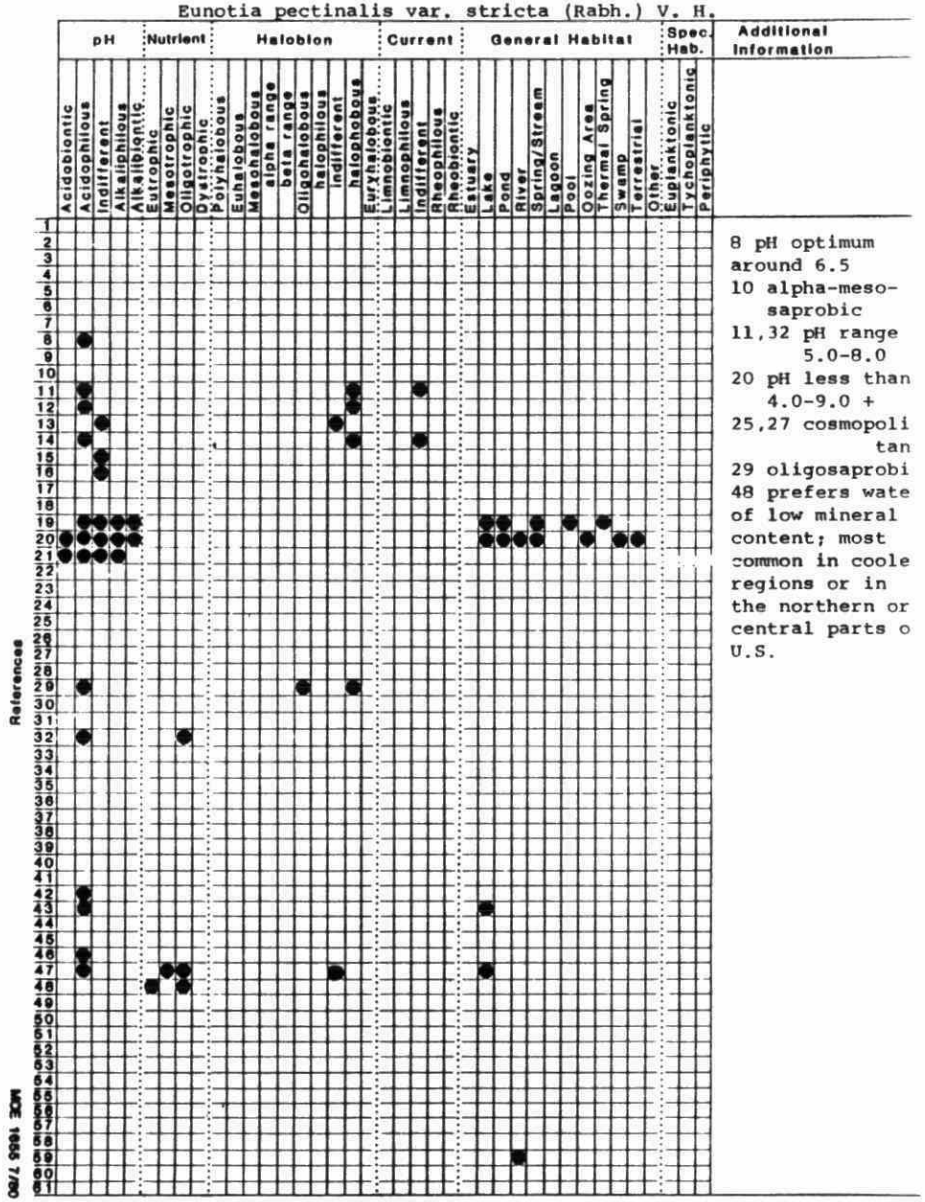
20 pH range les than 4.0-9.0 +
25 cosmopolitan
29 oligosaprobi
48 tolerates more calcium than any other sp. of Eunotia
41 aerophilous
19 pH range 6.0

Ministry of the Environment
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Taxon Eunotia pectinalis (O. Mull.) Rabh. var. pectinalis

Synonym Eunotia pectinalis f. elongata V. H.

Eunotia pectinalis var. stricta (Rabh.) V. H.

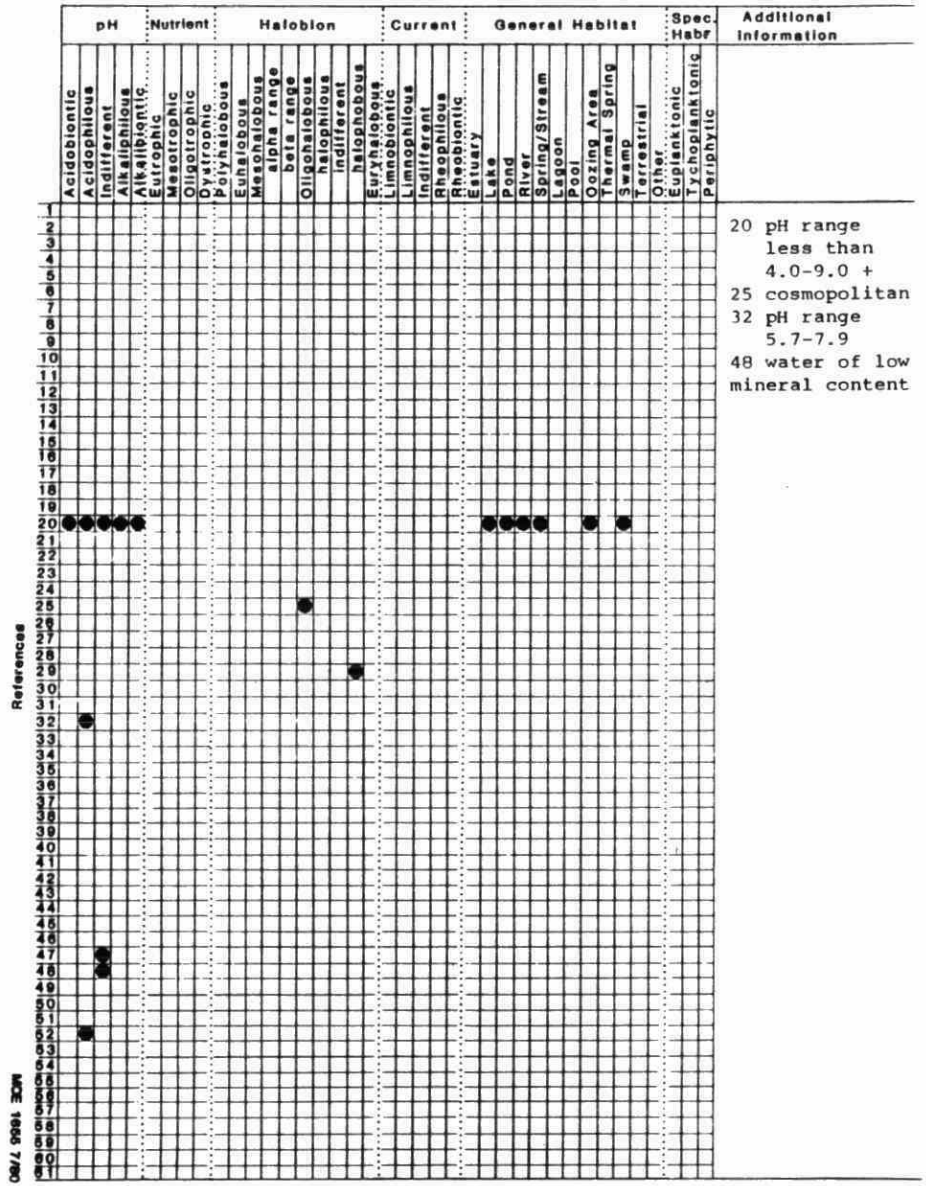


8 pH optimum around 6.5
10 alpha-meso-saprobic
11,32 pH range 5.0-8.0
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 oligosaprobi
48 prefers wate of low mineral content; most common in coole regions or in the northern or central parts o U.S.

Ministry of the Environment
Ontario

Taxon Eunotia pectinalis var. undulata (Ralfs) Rabh.

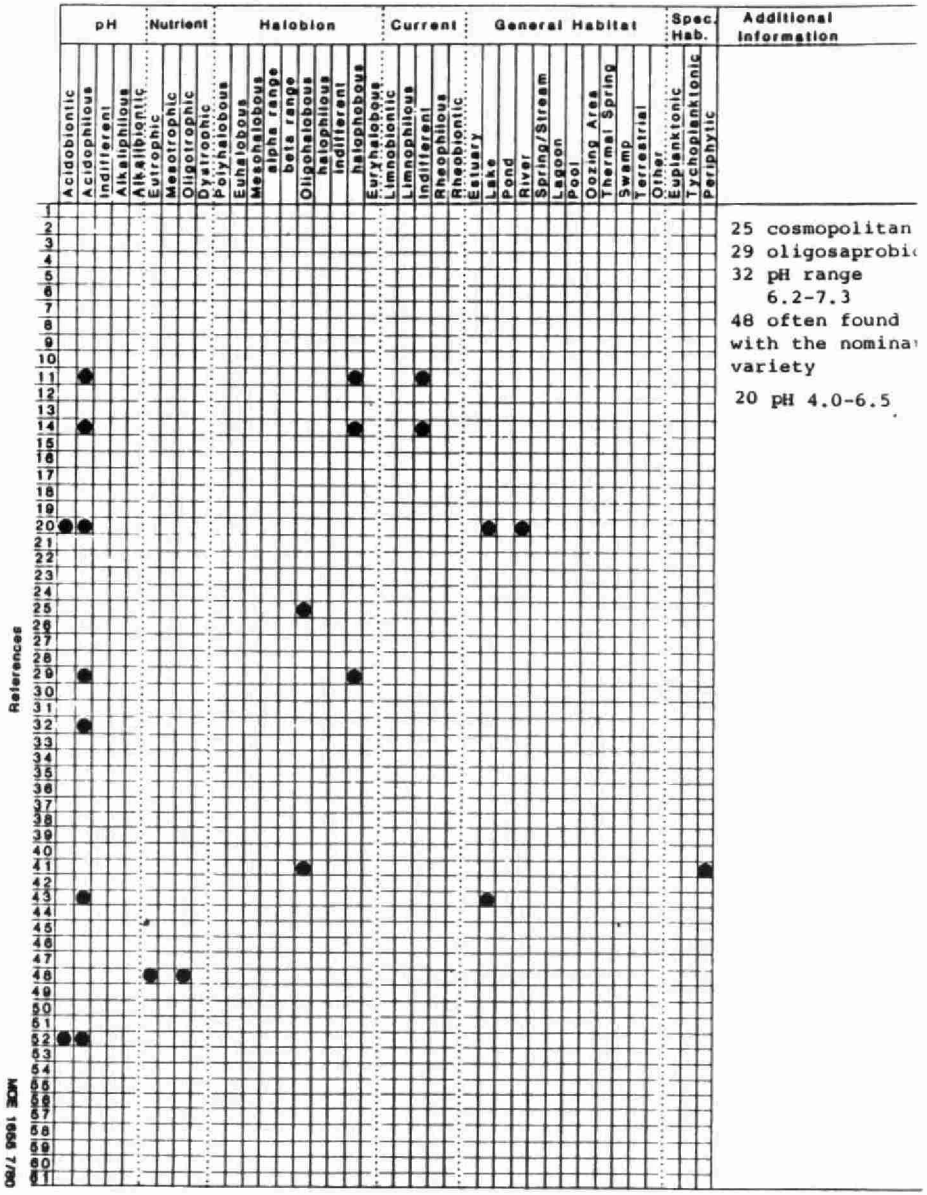
Synonym



20 pH range less than 4.0-9.0 +
25 cosmopolitan
32 pH range 5.7-7.9
48 water of low mineral content

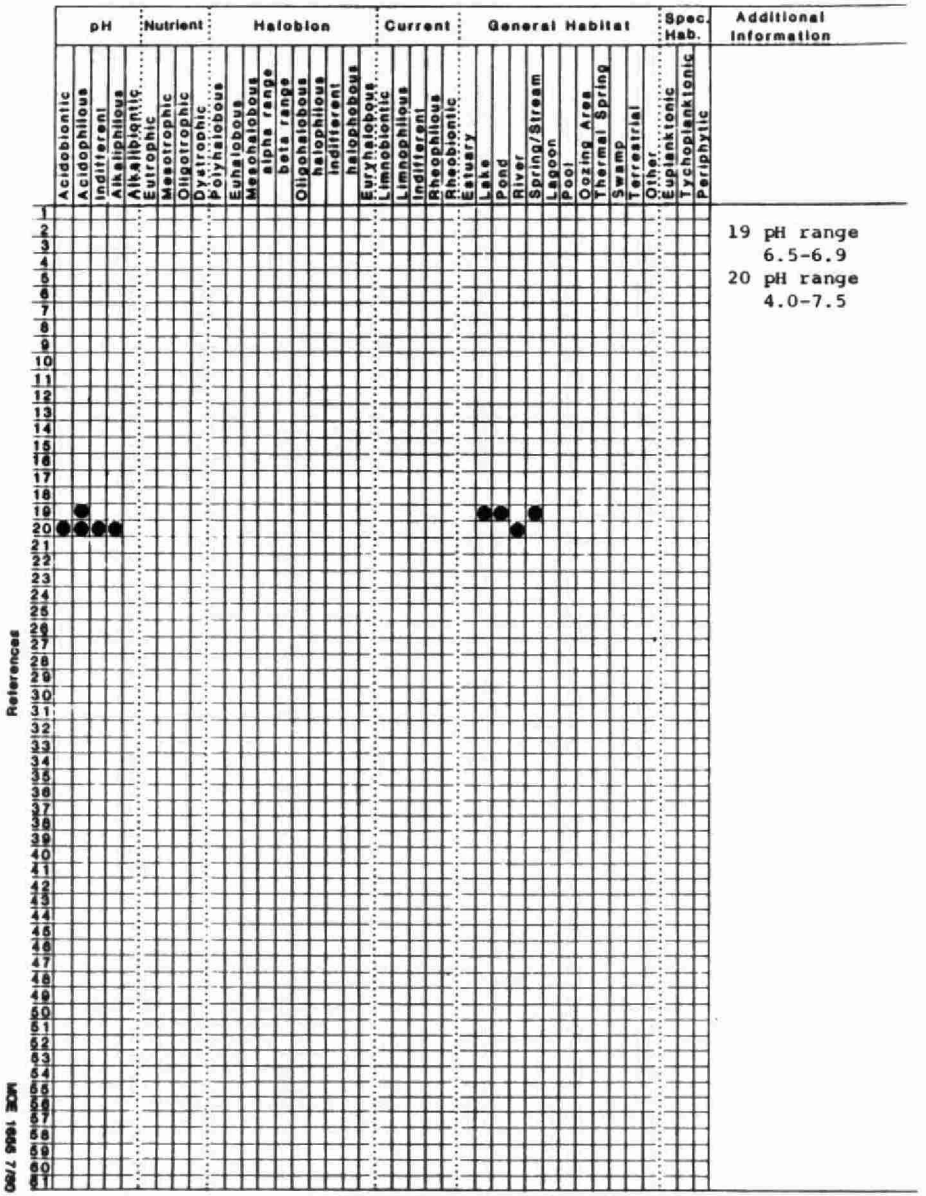
Taxon Eunotia pectinalis var. ventricosa Grun.

Synonym Eunotia pectinalis var. ventralis (Ehr.) Hust.



Taxon Eunotia polydentula Brun.

Synonym



Ministry of the Environment
Ontario

Taxon Eunotia polyglyphis Grun.

Synonym

pH						Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalopous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH 6.0-7.4
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References

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19 pH 6.0-7.4

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Ontario

Taxon Eunotia praerupta var. bidens (Ehr.) Grun.

Synonym

pH						Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalopous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH 6.5-8.9 20 pH 4.0-8.9 48 prefers wate of low mineral content often associated with moss
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References

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Ministry of the Environment
Ontario

Taxon Eunotia praerupta var. inflata Grun.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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19 pH range
6.5-6.9
7.5-7.9
48 prefers cool water, often associated with moss

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Ministry of the Environment
Ontario

Taxon Eunotia praerupta var. muscicola Peter.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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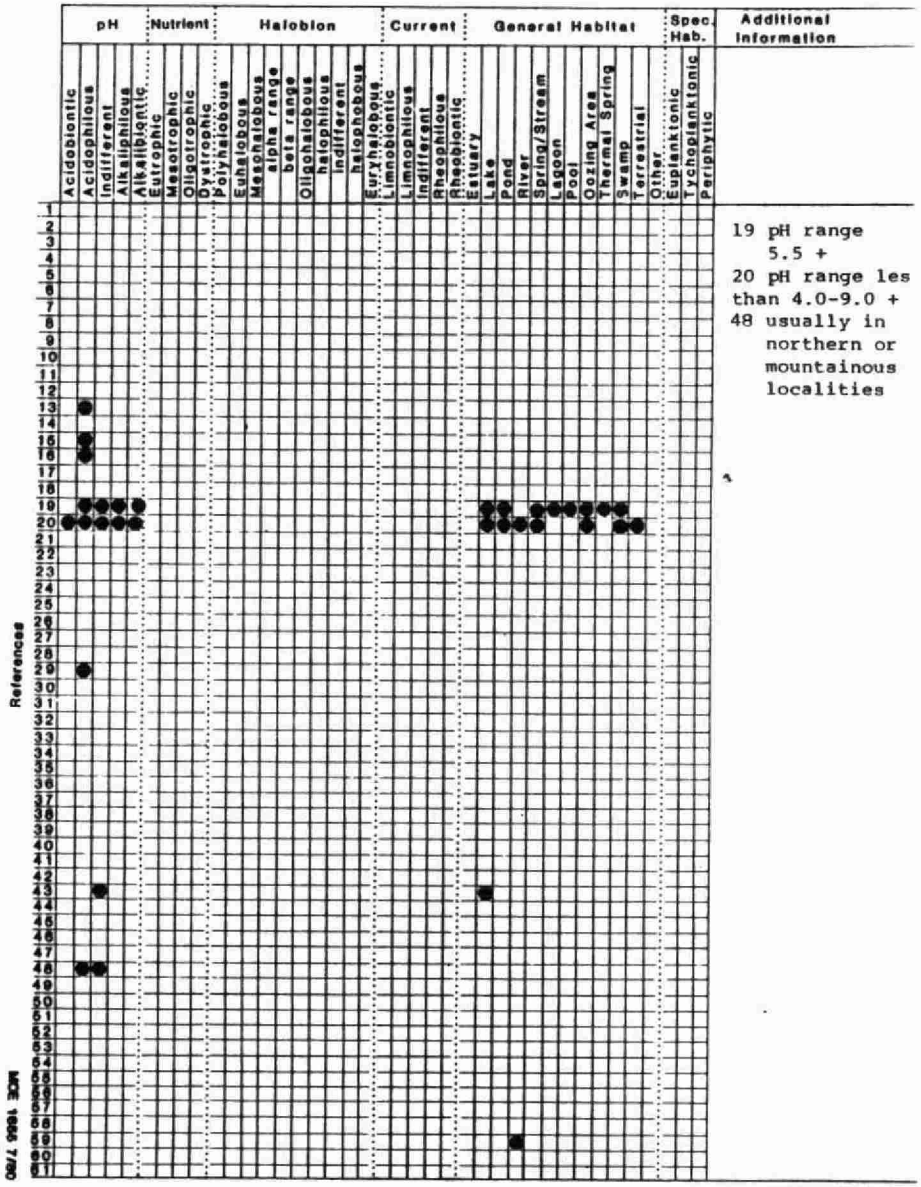
19 pH range
6.0-6.4
20 pH 6.2,8.3

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Ontario

Taxon Eunotia praerupta Ehr. var. praerupta

Synonym Eunotia praerupta var. curta Grun.

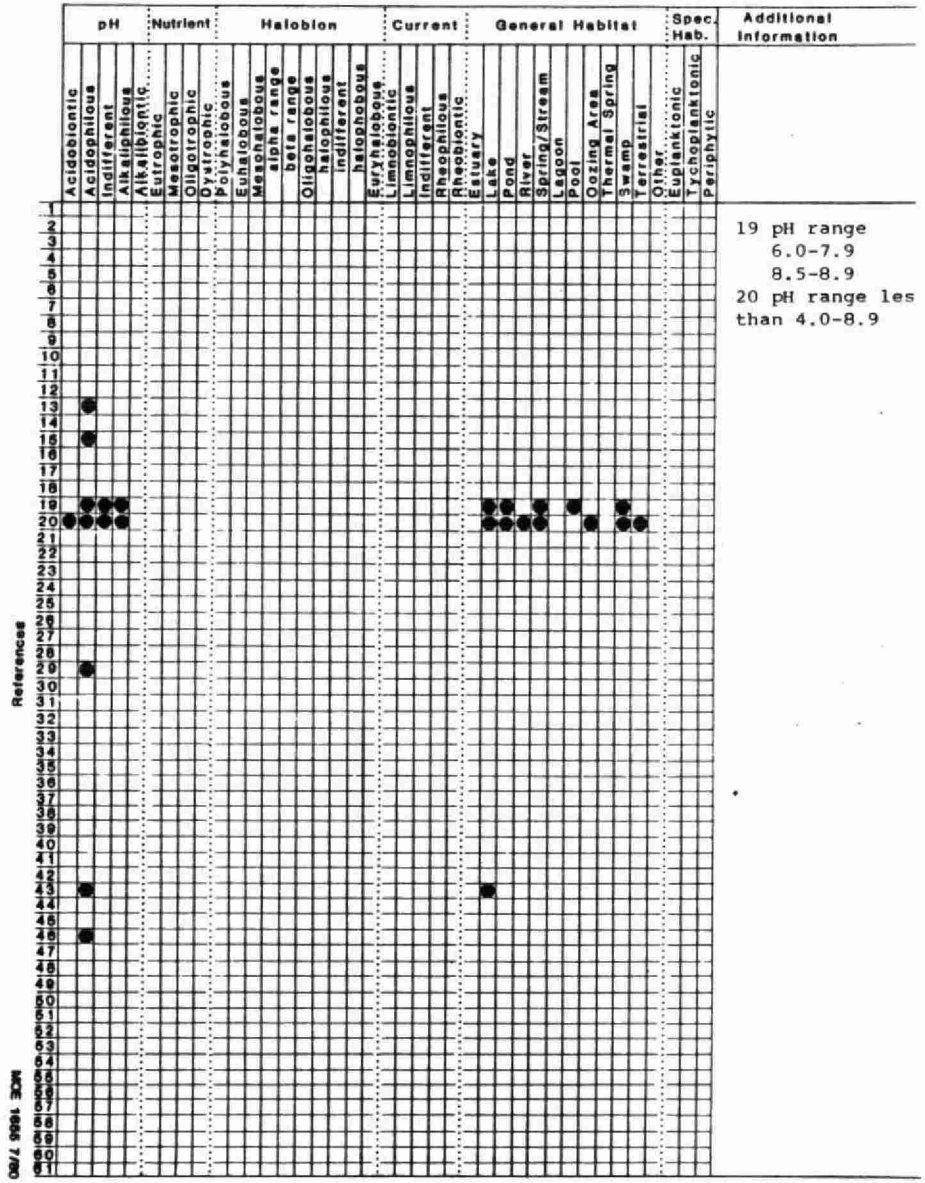


19 pH range 5.5 +
20 pH range les than 4.0-9.0 +
48 usually in northern or mountainous localities

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Taxon Eunotia rhomboidea Hust.

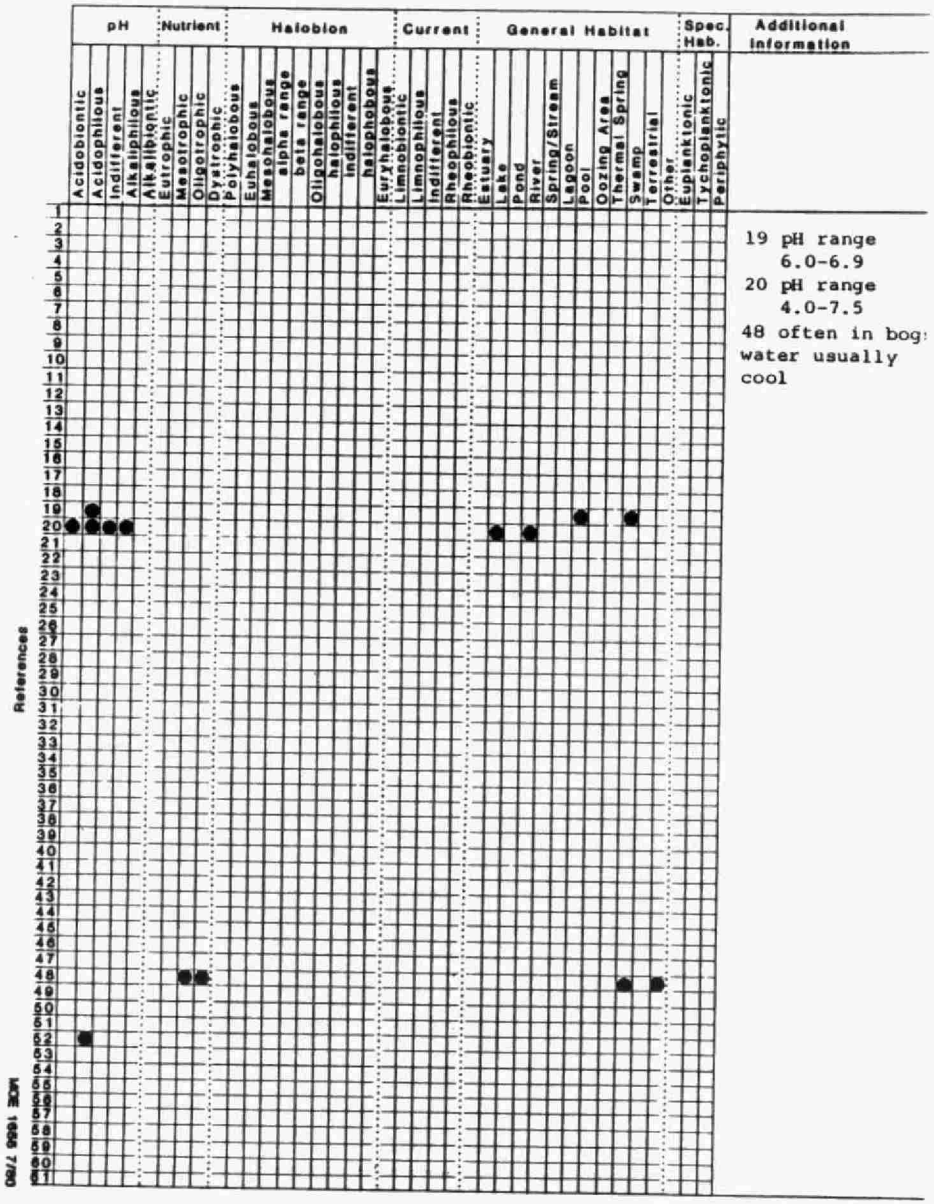
Synonym



19 pH range 6.0-7.9
8.5-8.9
20 pH range les than 4.0-8.9

Taxon Eunotia robusta var. diadema (Ehr.) Ralfs

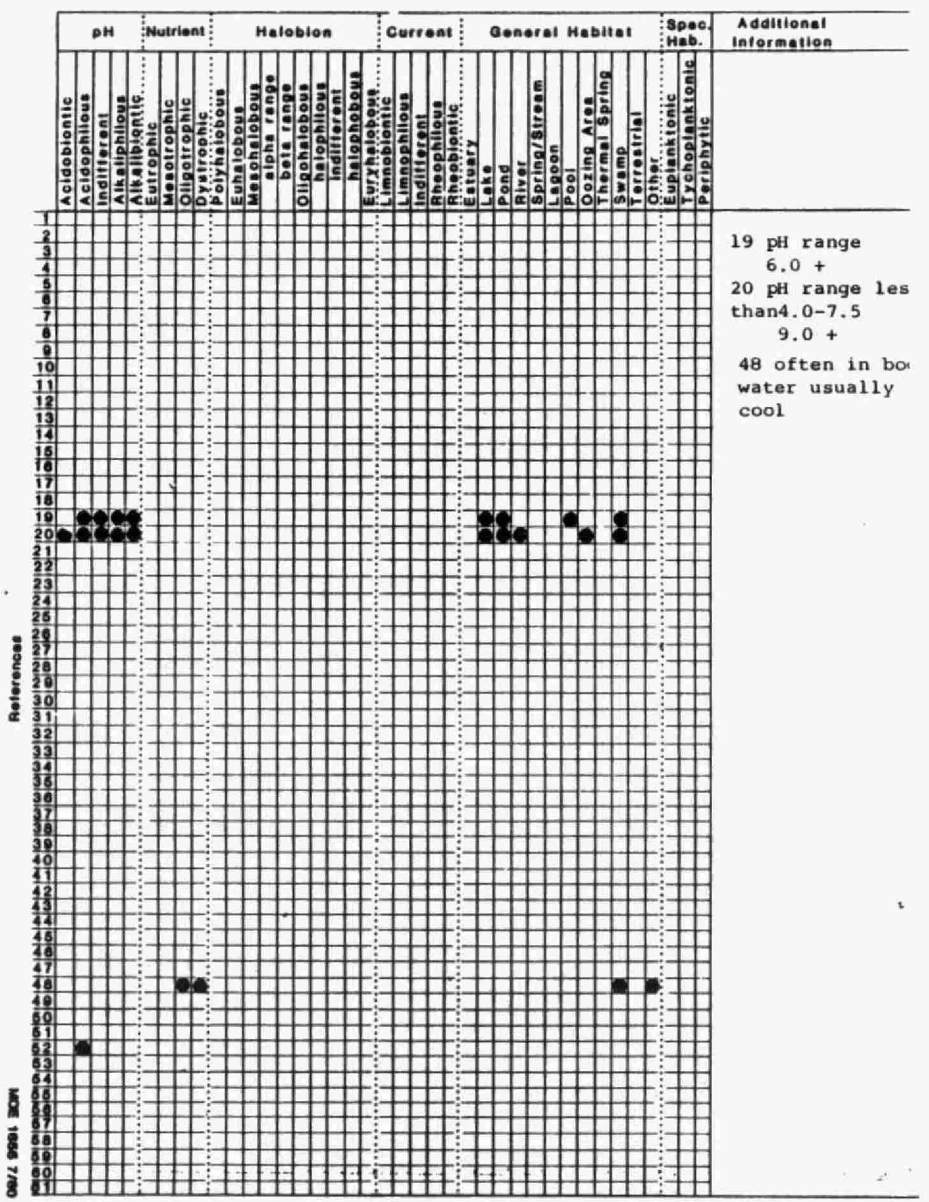
Synonym Eunotia serra var. diadema (Ehr.) Patr.?



19 pH range 6.0-6.9
20 pH range 4.0-7.5
48 often in bog; water usually cool

Taxon Eunotia robusta var. tetraodon (Ehr.) Ralfs

Synonym Eunotia serra var. diadema (Ehr.) Patr.?

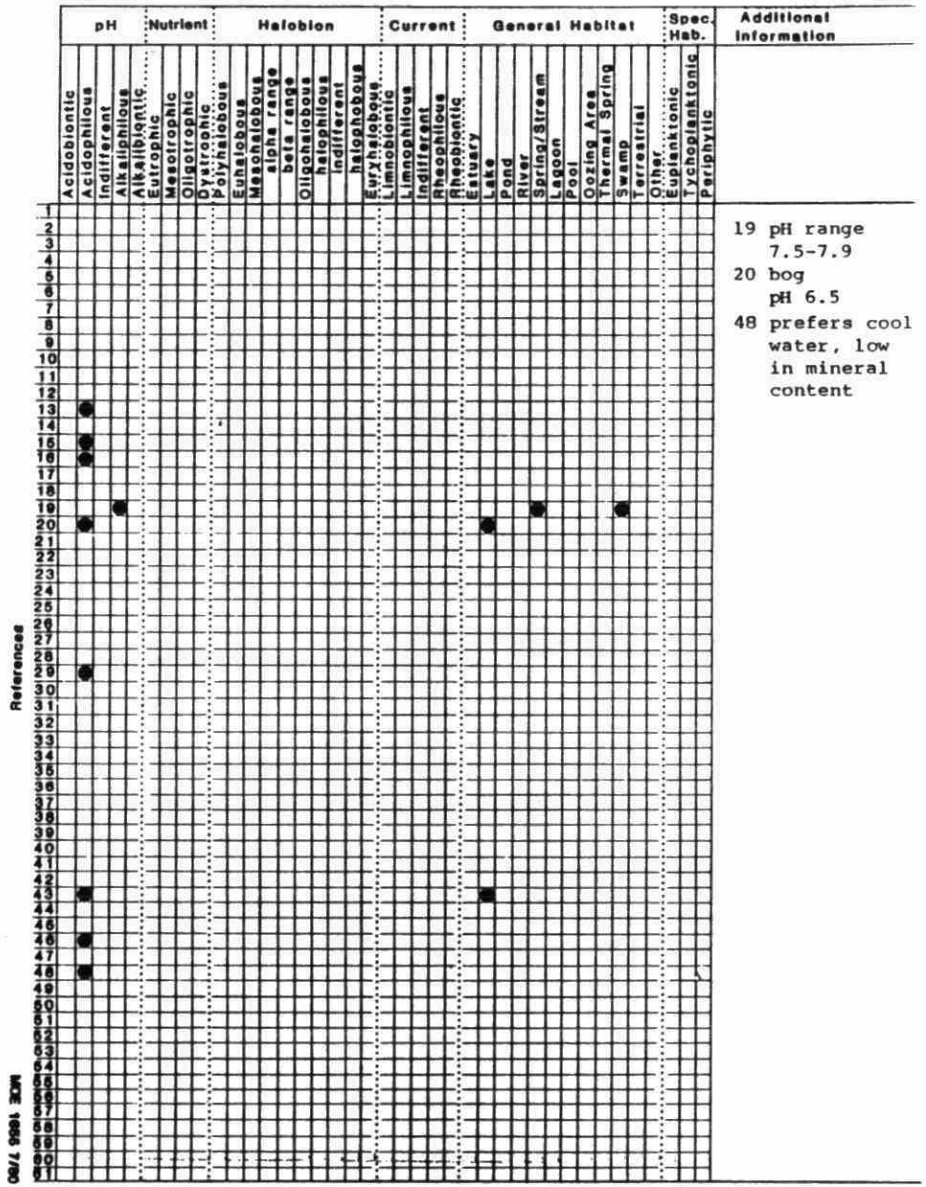


19 pH range 6.0 +
20 pH range less than 4.0-7.5
9.0 +
48 often in bo water usually cool

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Taxon Eunotia septentrionalis Østr.

Synonym



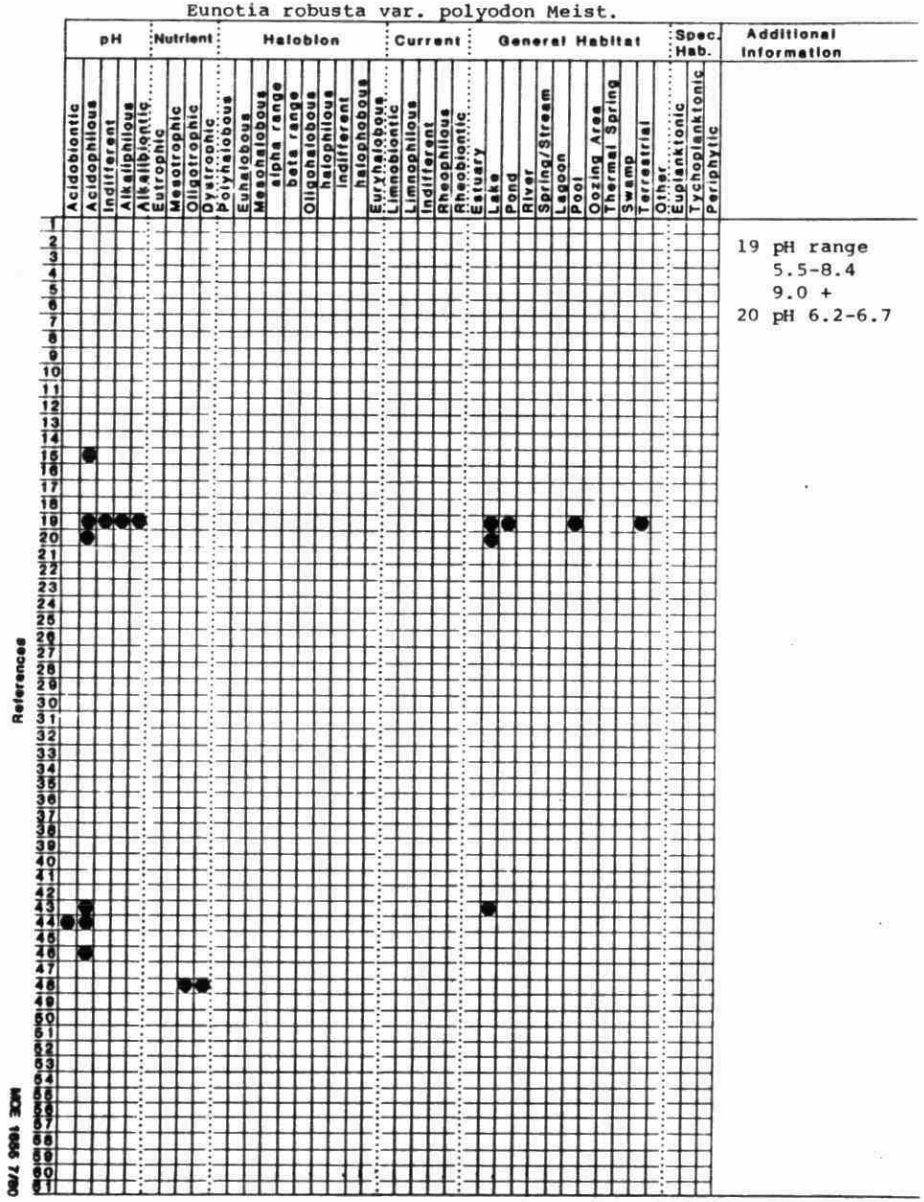
19 pH range 7.5-7.9
20 bog pH 6.5
48 prefers cool water, low in mineral content

Ministry of the Environment
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Taxon Eunotia serra Ehr.

Synonym Eunotia robusta Ralfs.

Eunotia robusta var. polyodon Meist.



19 pH range
5.5-8.4
9.0 +
20 pH 6.2-6.7

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Ontario

Taxon Eunotia sudetica O. Mull. var. sudetica

Synonym

pH					Nutrient			Halobion								Current					General Habitat								Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH range 6.5-7.4 20 pH range les than 4.0-9.0 +

References

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Ministry of the Environment
Ontario

Taxon Eunotia sudetica var. bidens Hust.

Synonym

pH					Nutrient			Halobion								Current					General Habitat								Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH range 7.5-7.9 20 pH range 4.0-6.5

References

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Ministry of the Environment
Ontario

Taxon Eunotia suecica Cl. var. suecica

Synonym

pH					Nutrient				Halobion								Current					General Habitat								Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH 6.5-6.9 48 oligothermal
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References

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Taxon Eunotia tenella (Grun.) Cl.

Synonym

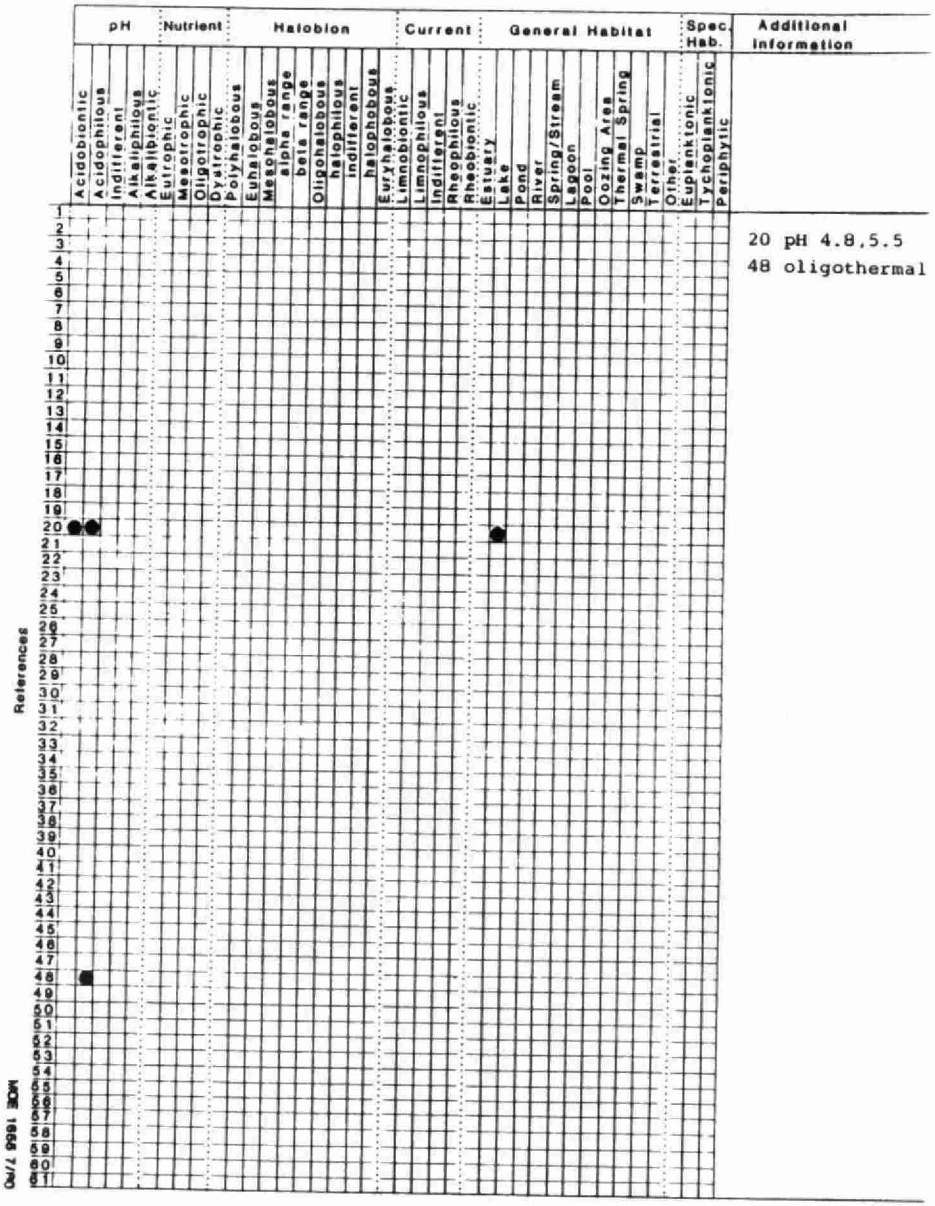
pH					Nutrient				Halobion								Current					General Habitat								Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
	●																								●						●	●	●						19 pH range 5.5 20 pH range les than 4.0-9.0 + 48 prefers soft water
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References

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Taxon Eunotia trinacria Krasske

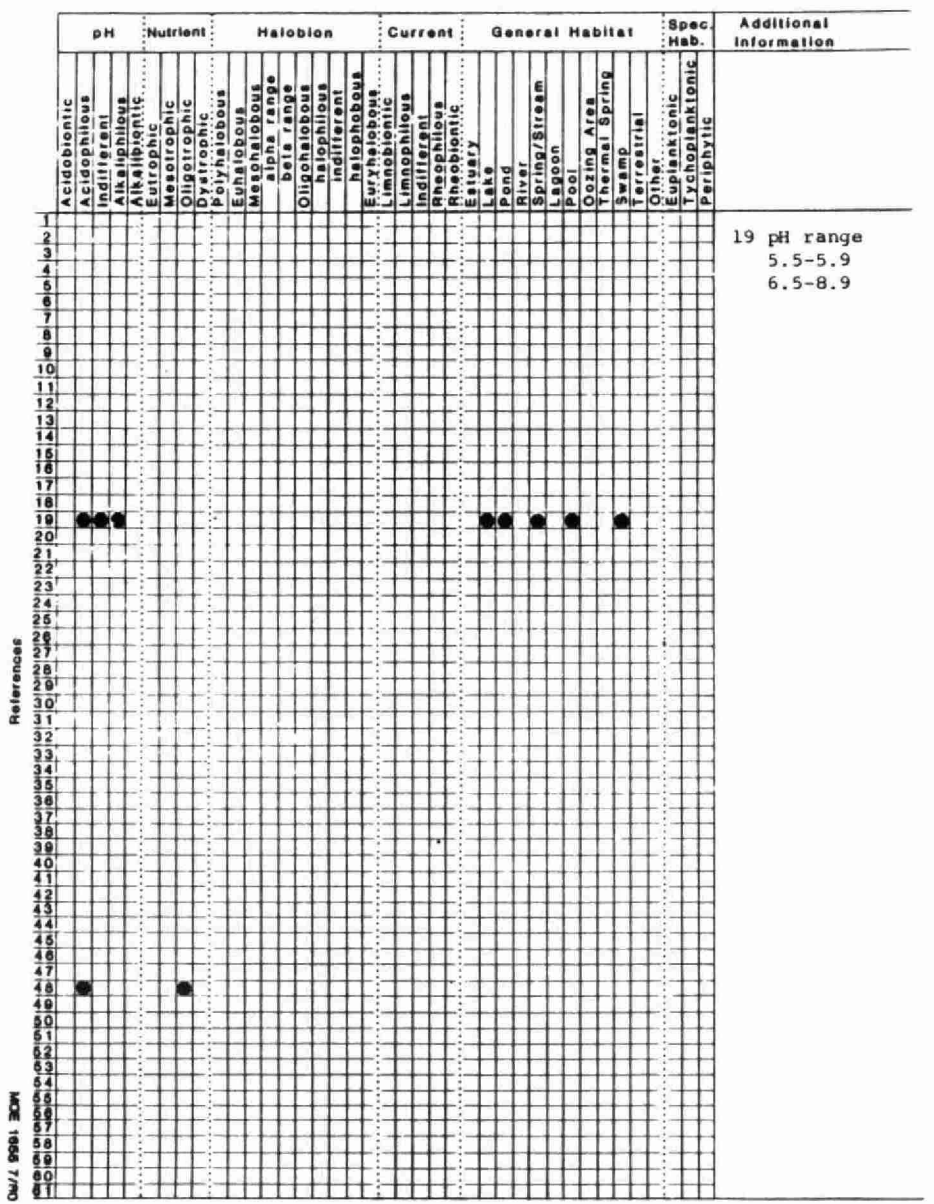
Synonym



20 pH 4.8,5.5
48 oligothermal

Taxon Eunotia triodon Ehr. var. triodon

Synonym

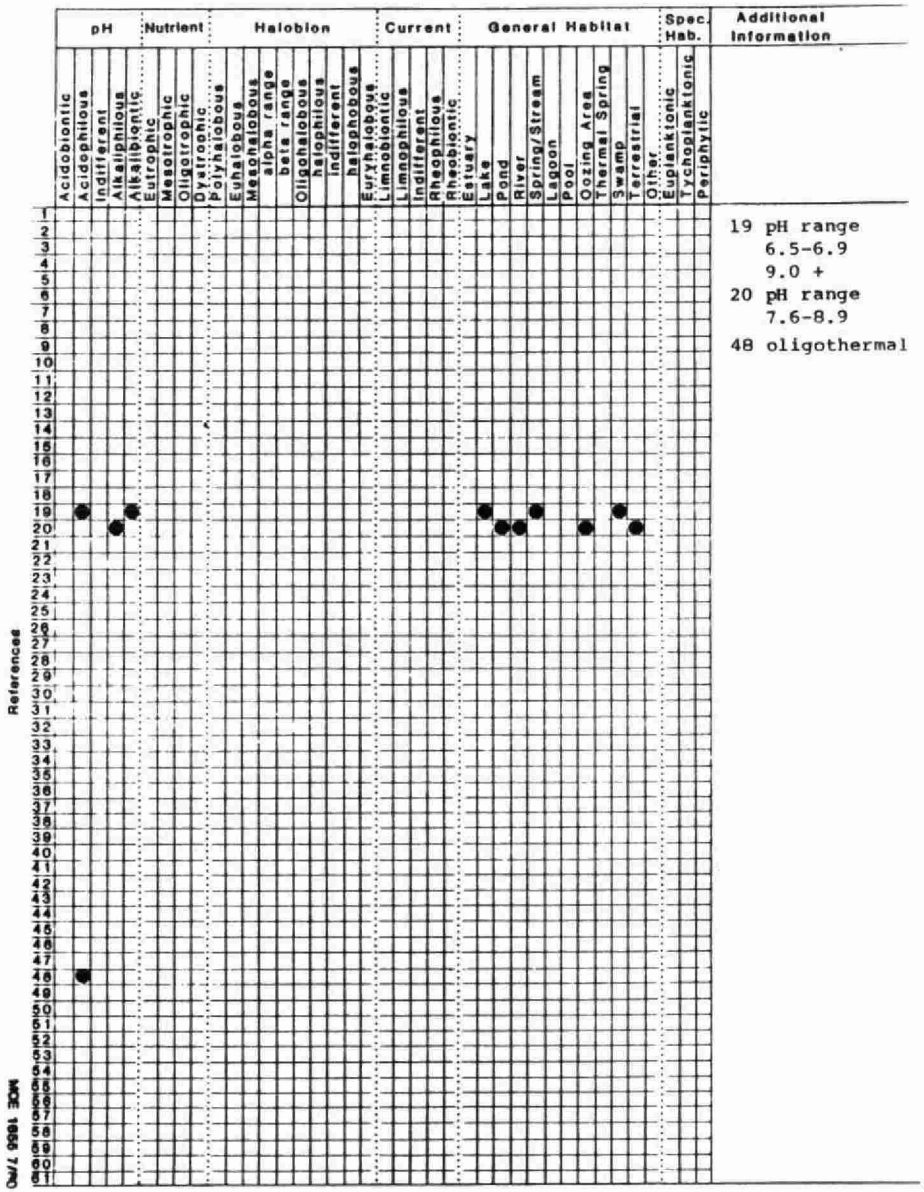


19 pH range
5.5-5.9
6.5-8.9

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Taxon Eunotia valida Hust.

Synonym

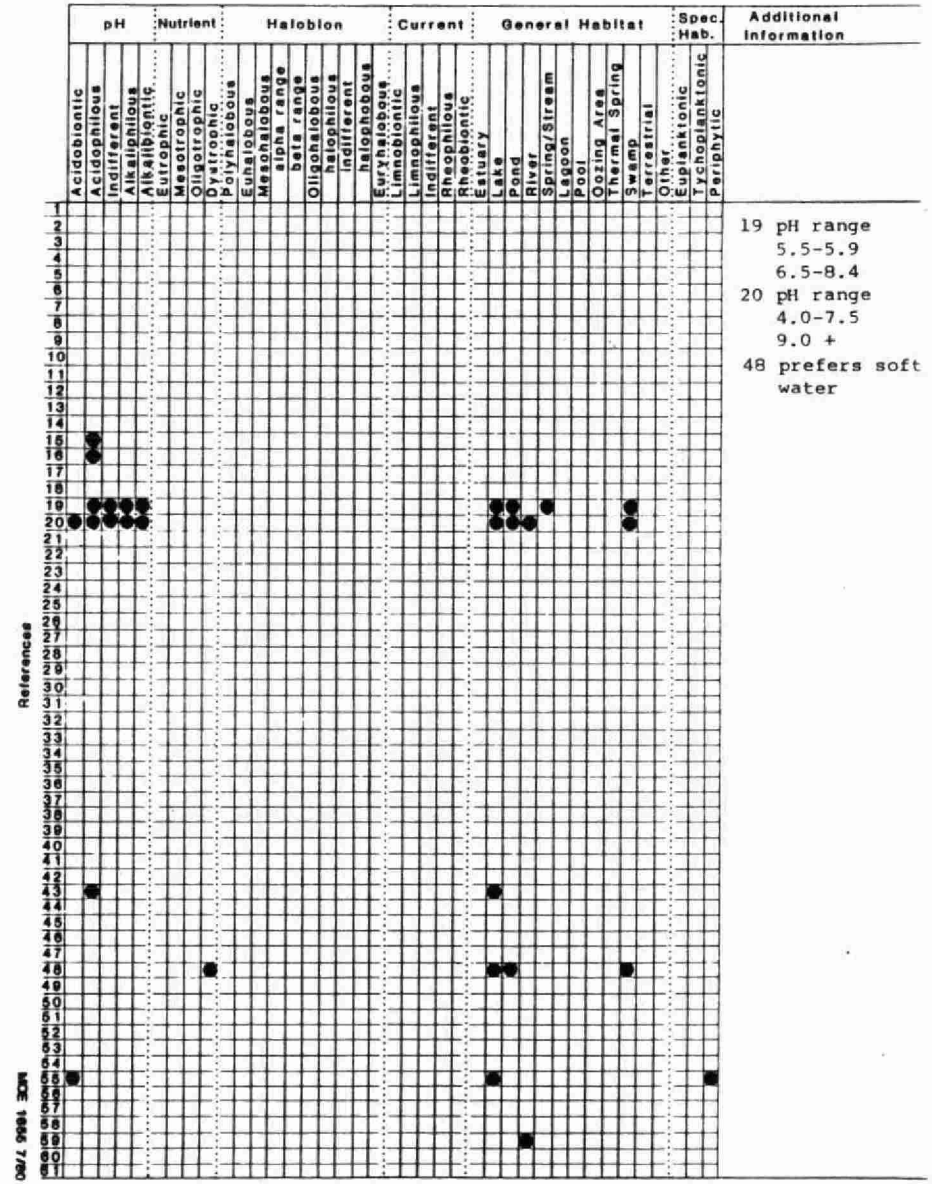


19 pH range
6.5-6.9
9.0 +
20 pH range
7.6-8.9
48 oligothermal

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Taxon Eunotia vanheurckii Patr. var. vanheurckii

Synonym Eunotia faba (Ehr.) Grun.

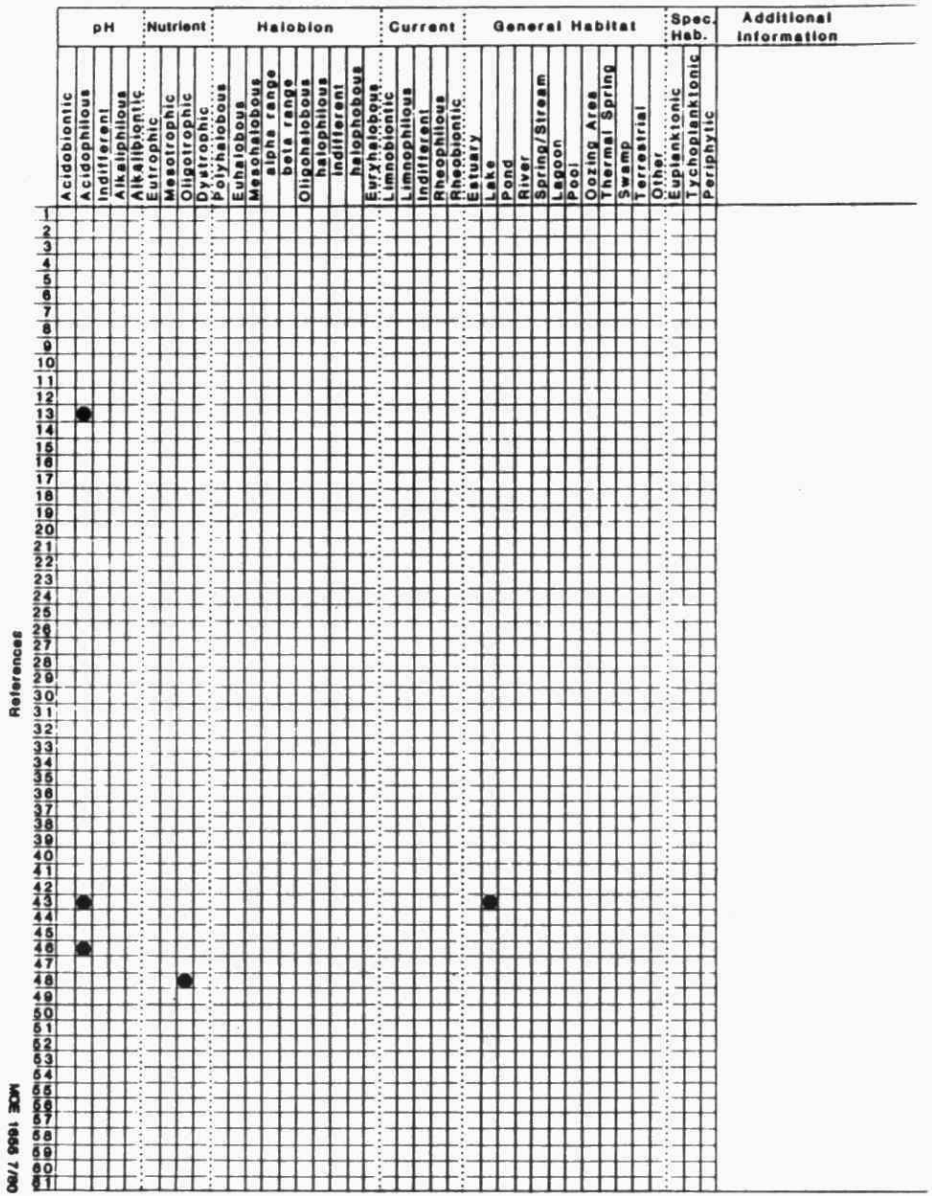


19 pH range
5.5-5.9
6.5-8.4
20 pH range
4.0-7.5
9.0 +
48 prefers soft water

Ministry of the Environment
Ontario

Taxon Eunotia vanheurckii var. intermedia (Krasske ex. Hust.) Patr.

Synonym Eunotia pectinalis var. minor f. intermedia Krasske ex Hust.

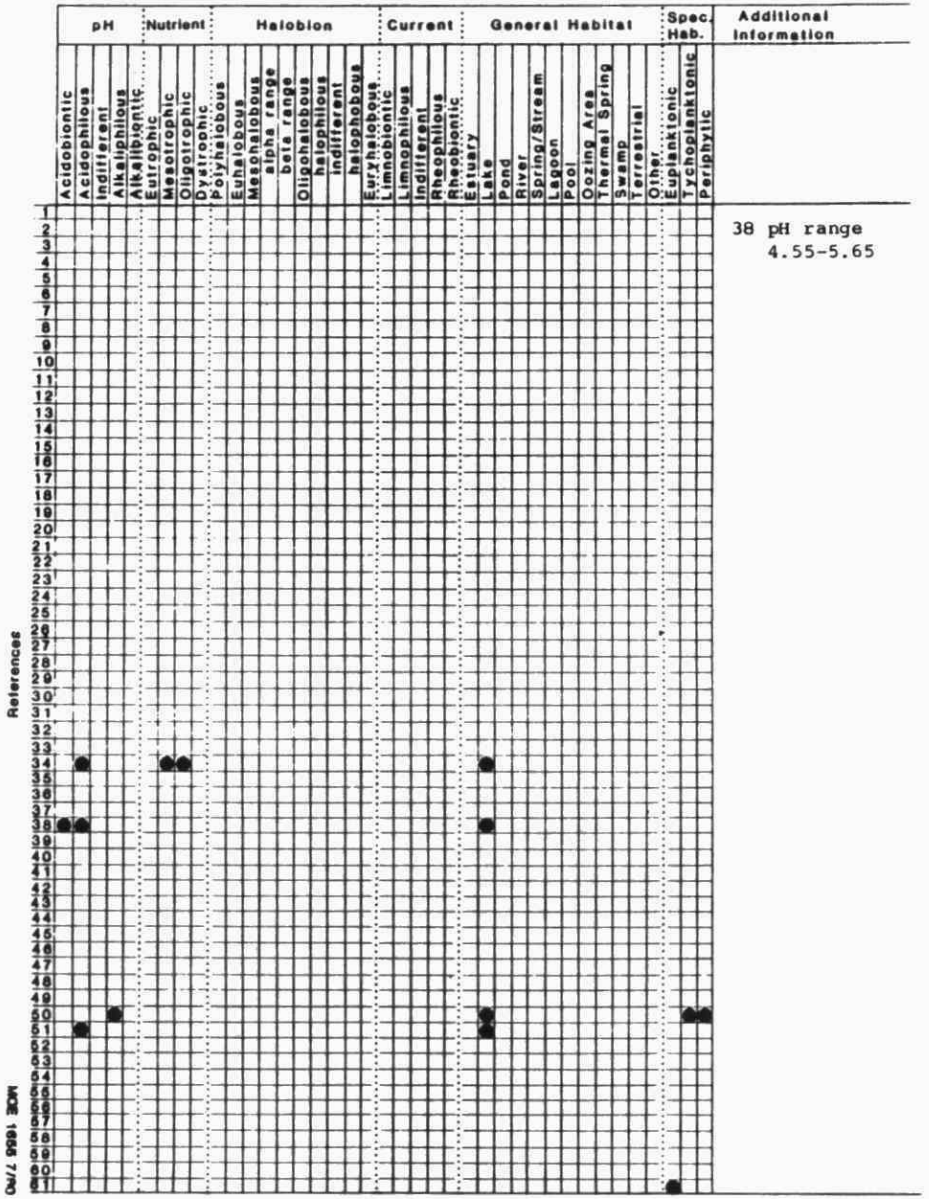


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Taxon Fragilaria sp.

Synonym

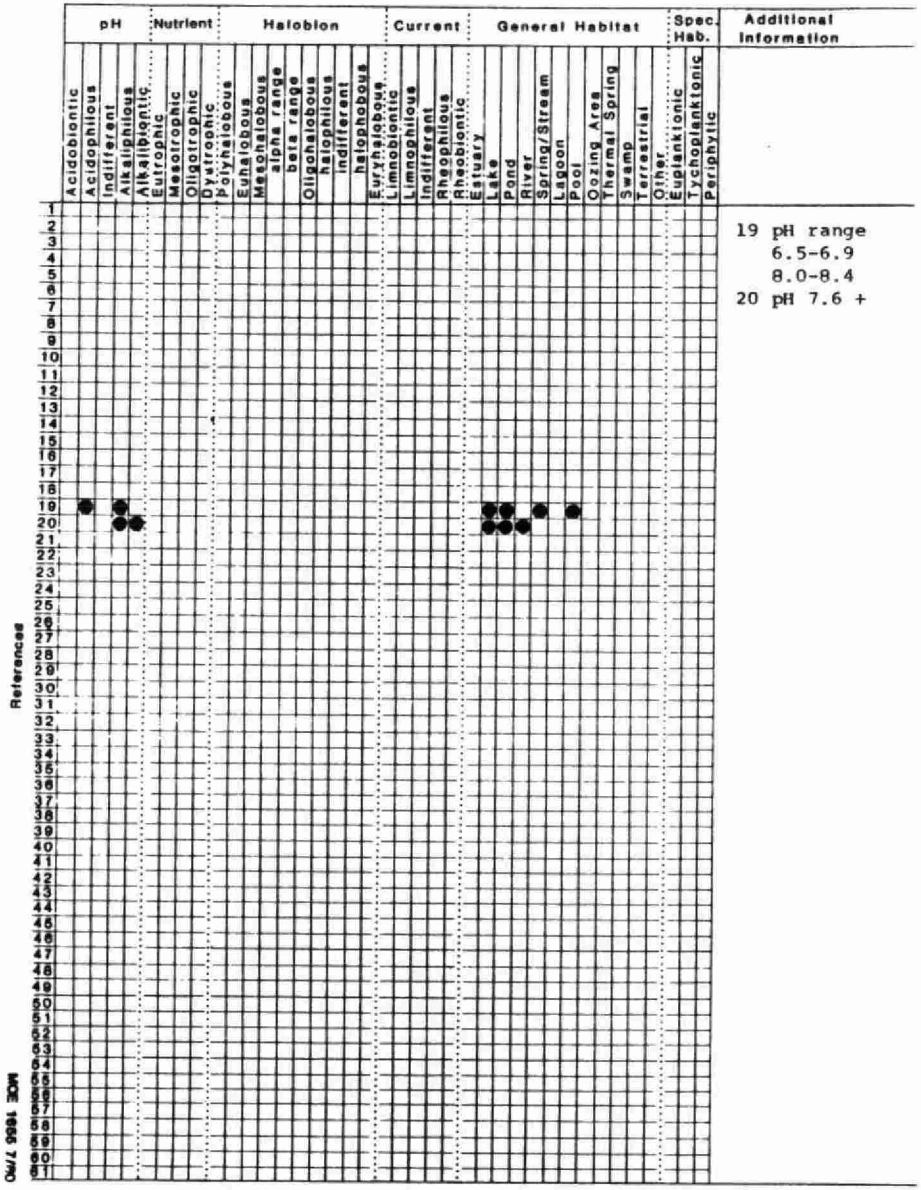


MOE 1986 7/DO

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Ontario

Taxon Fragilaria bidens Heib.

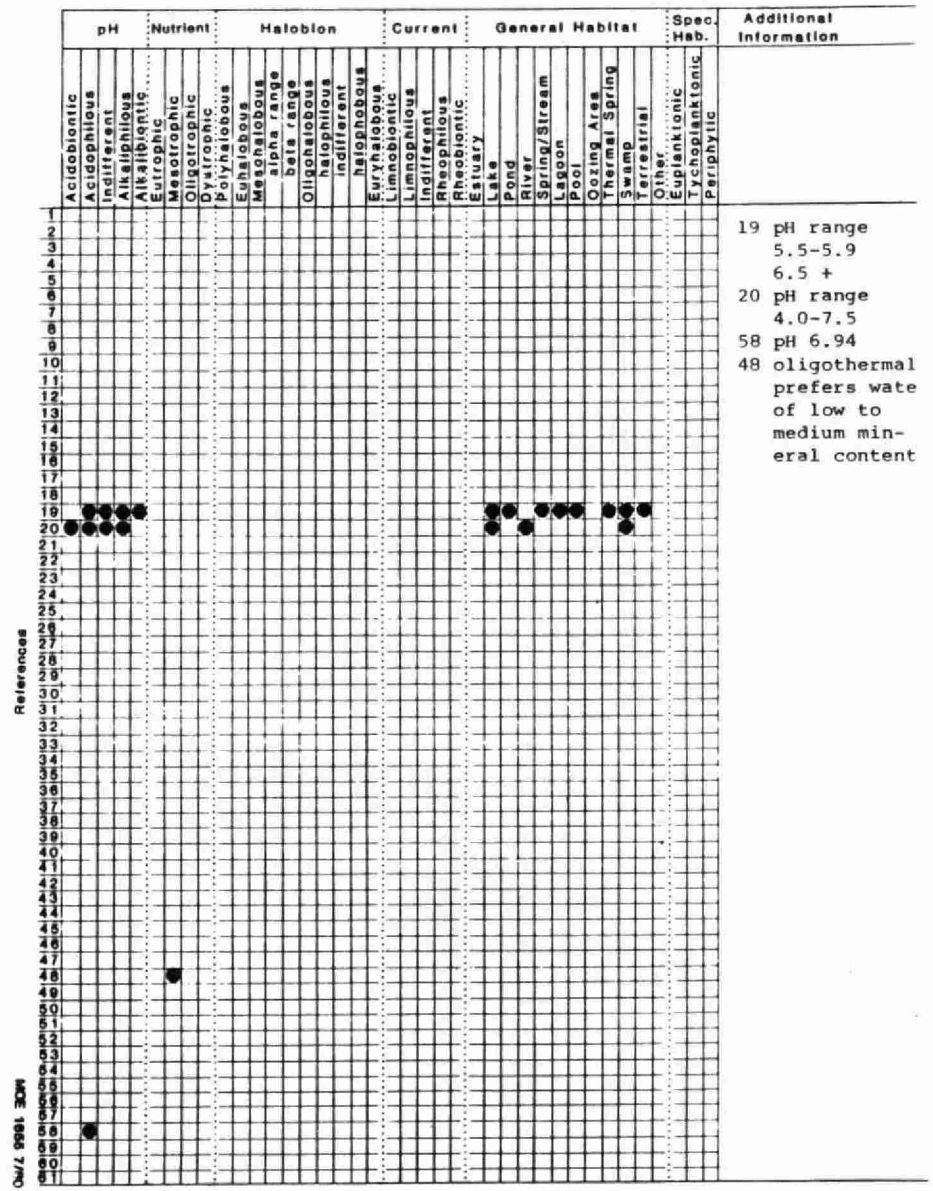
Synonym



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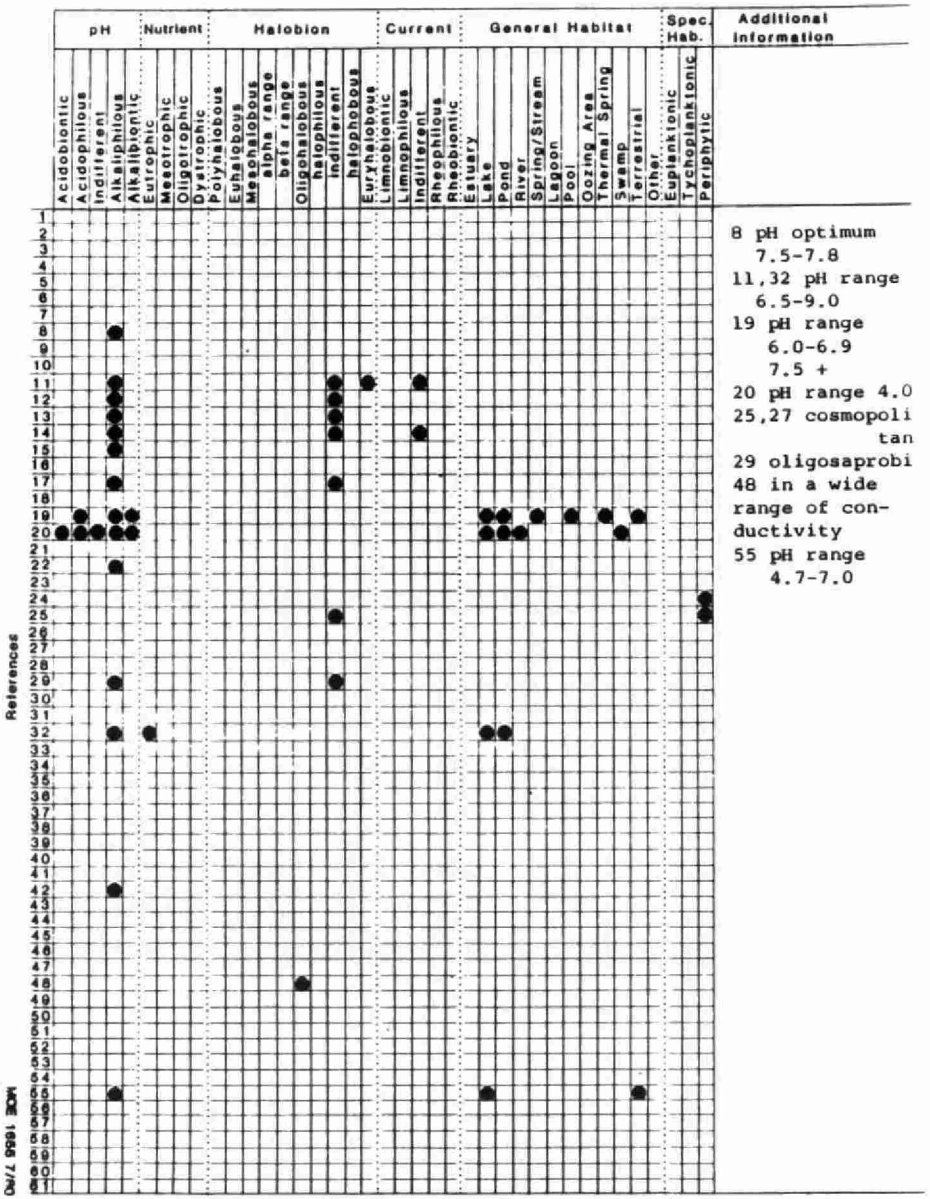
Taxon Fragilaria bicapitata A. Mayer

Synonym



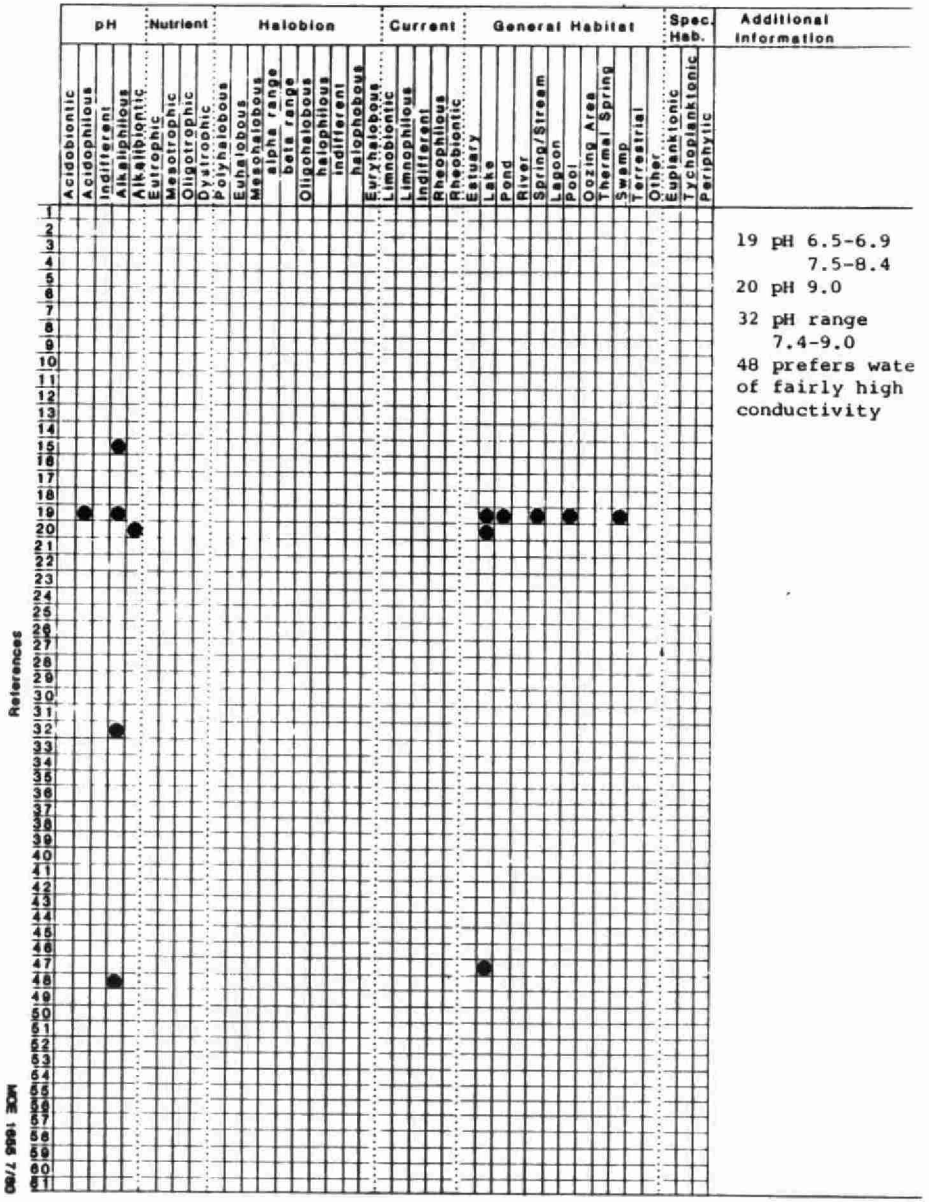
Taxon Fragilaria brevistriata Grun. var. brevistriata

Synonym



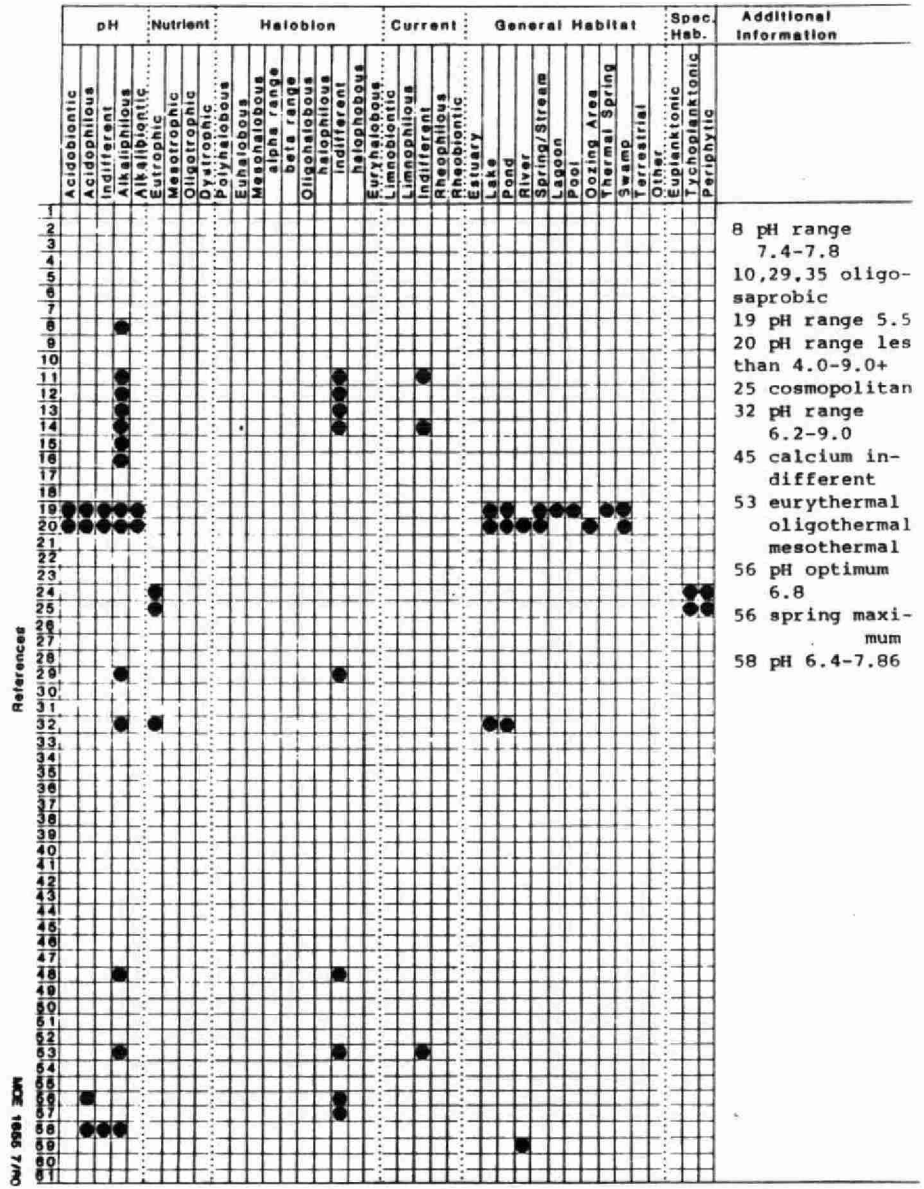
Taxon Fragilaria brevistriata var. inflata (Pant.) Hust.

Synonym Fragilaria inflata Pant.



Taxon Fragilaria capucina Desm. var. capucina

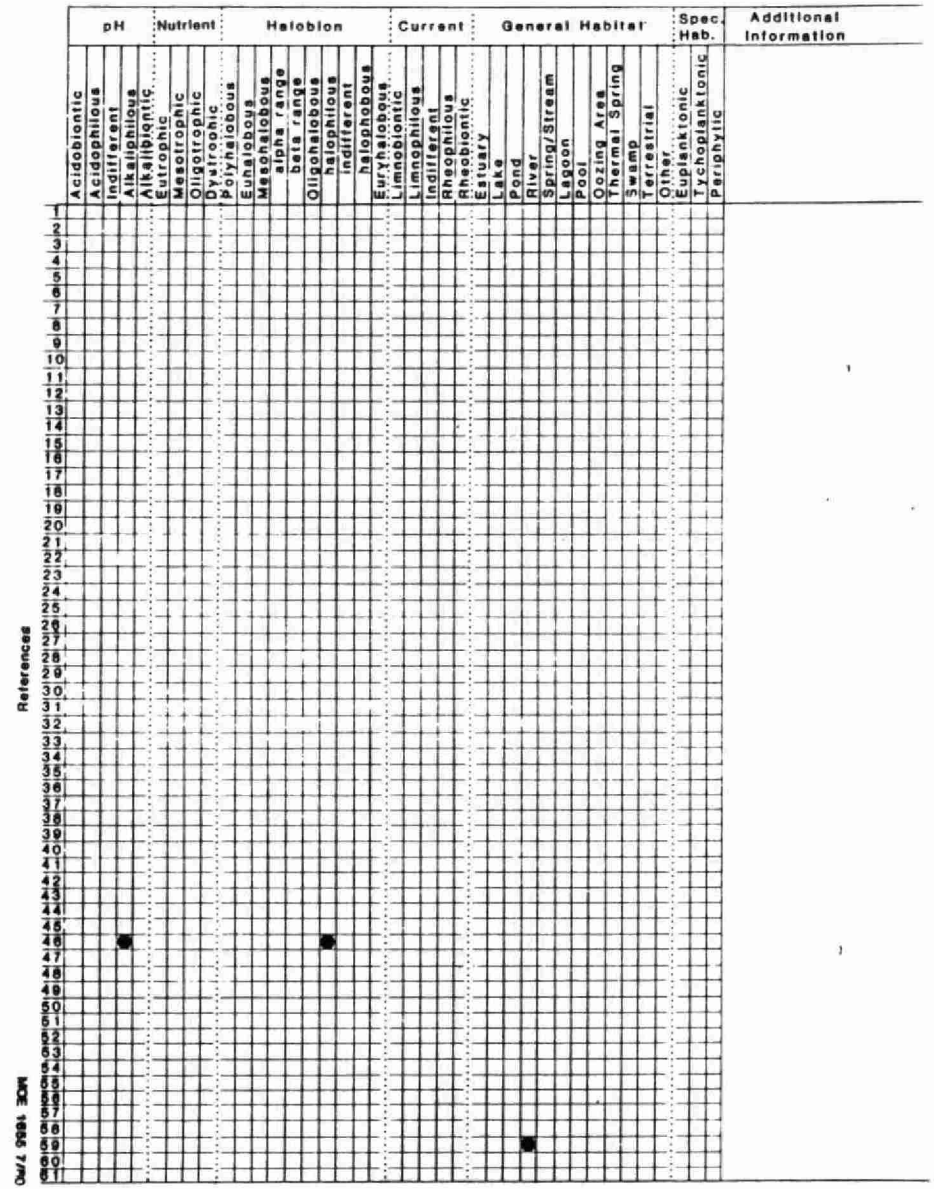
Synonym



8 pH range 7.4-7.8
10,29,35 oligosaprobic
19 pH range 5.5
20 pH range les than 4.0-9.0+
25 cosmopolitan
32 pH range 6.2-9.0
45 calcium indifferent
53 eurythermal oligothermal mesothermal
56 pH optimum 6.8
56 spring maximum
58 pH 6.4-7.86

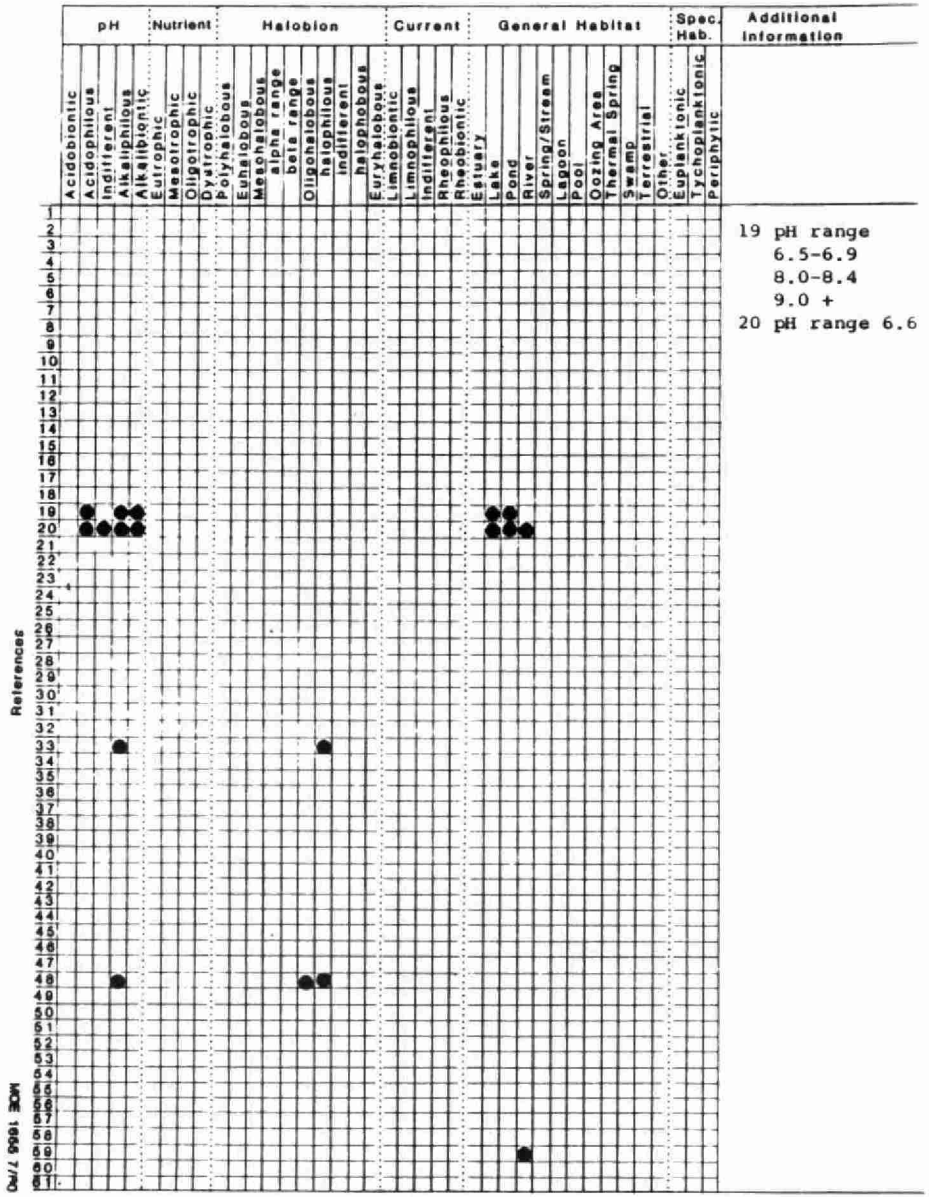
Taxon Fragilaria capucina var. lanceolata Grun.

Synonym



Taxon Fragilaria capucina var. mesolepta Rabh.

Synonym

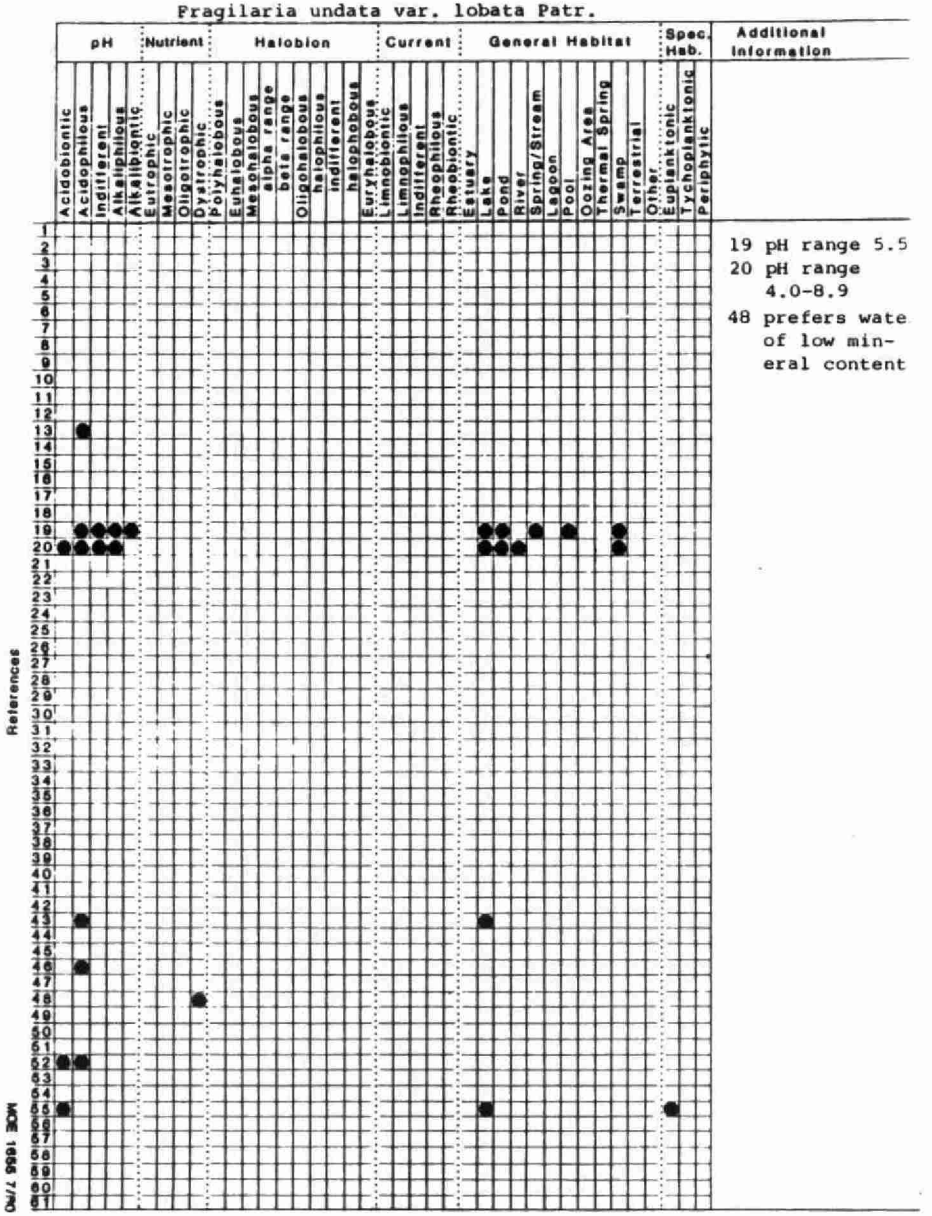


19 pH range
6.5-6.9
8.0-8.4
9.0 +
20 pH range 6.6

Taxon Fragilaria constricta Ehr. var. constricta

Synonym Fragilaria undata f. tetranodis Cl.

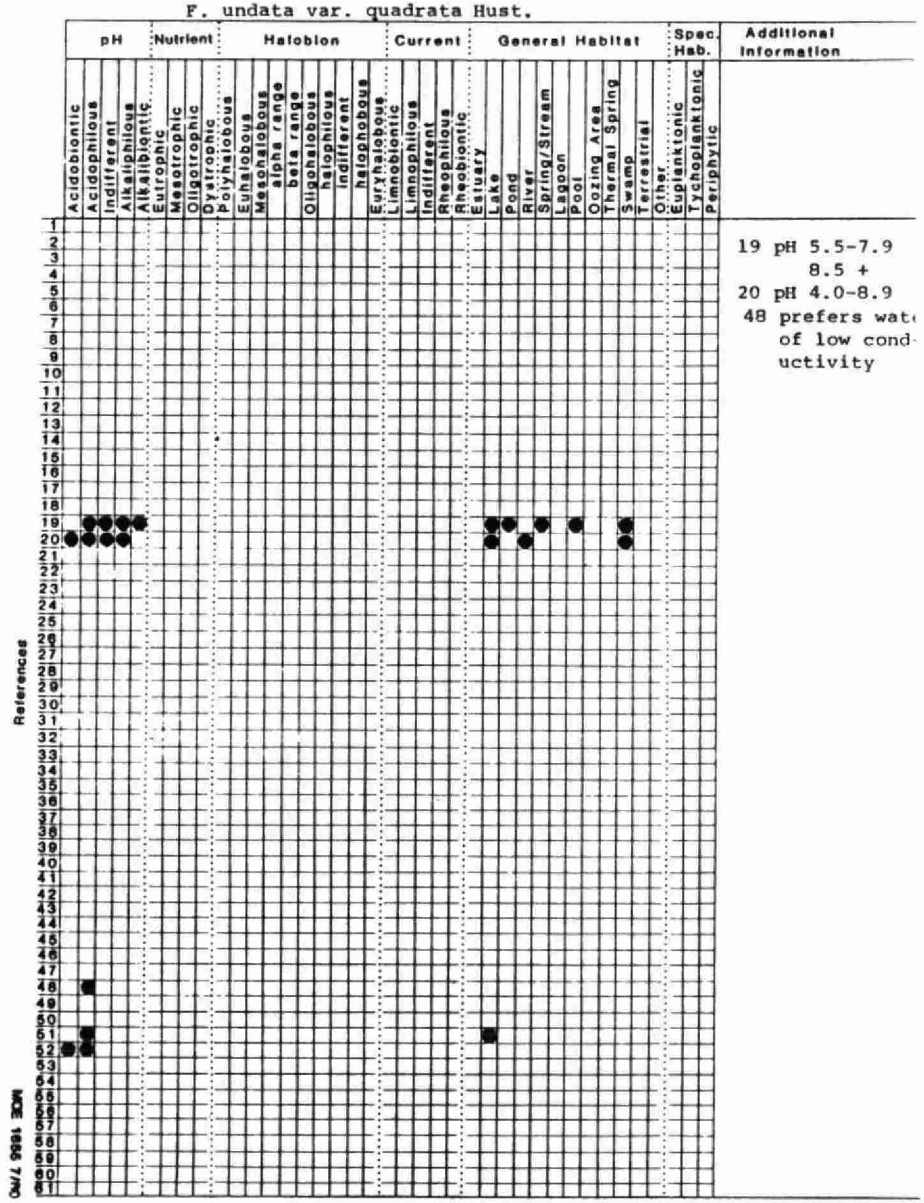
Fragilaria undata var. lobata Patr.



19 pH range 5.5
20 pH range
4.0-8.9
48 prefers wate
of low min-
eral content

Taxon Fragilaria constricta f. stricta (Cl.) Hust.

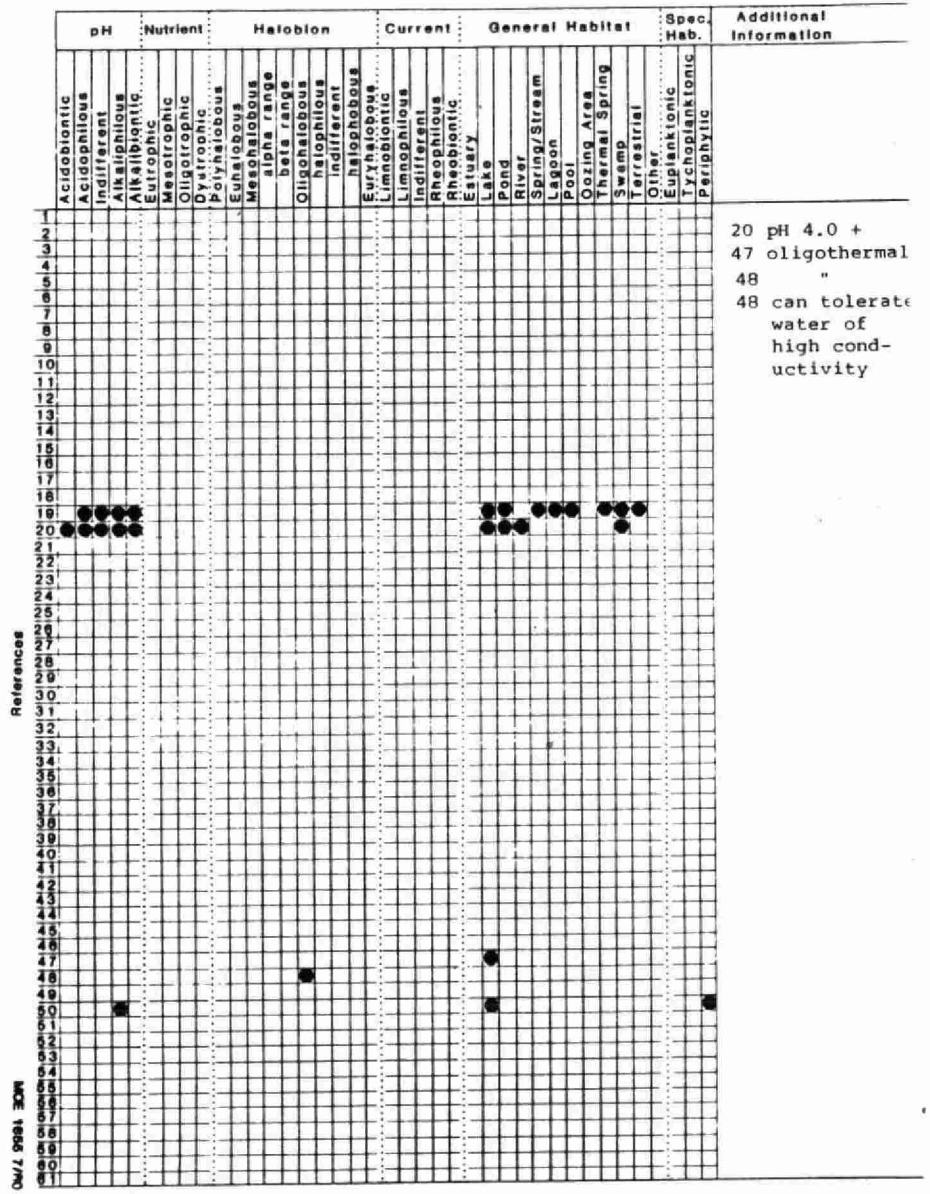
Synonym Fragilaria undata W. Sm./ F. undata f. stricta A. Cl./
F. undata var. quadrata Hust.



19 pH 5.5-7.9
8.5 +
20 pH 4.0-8.9
48 prefers wat
of low cond-
uctivity

Taxon Fragilaria construens var. binodis (Ehr.) Grun.

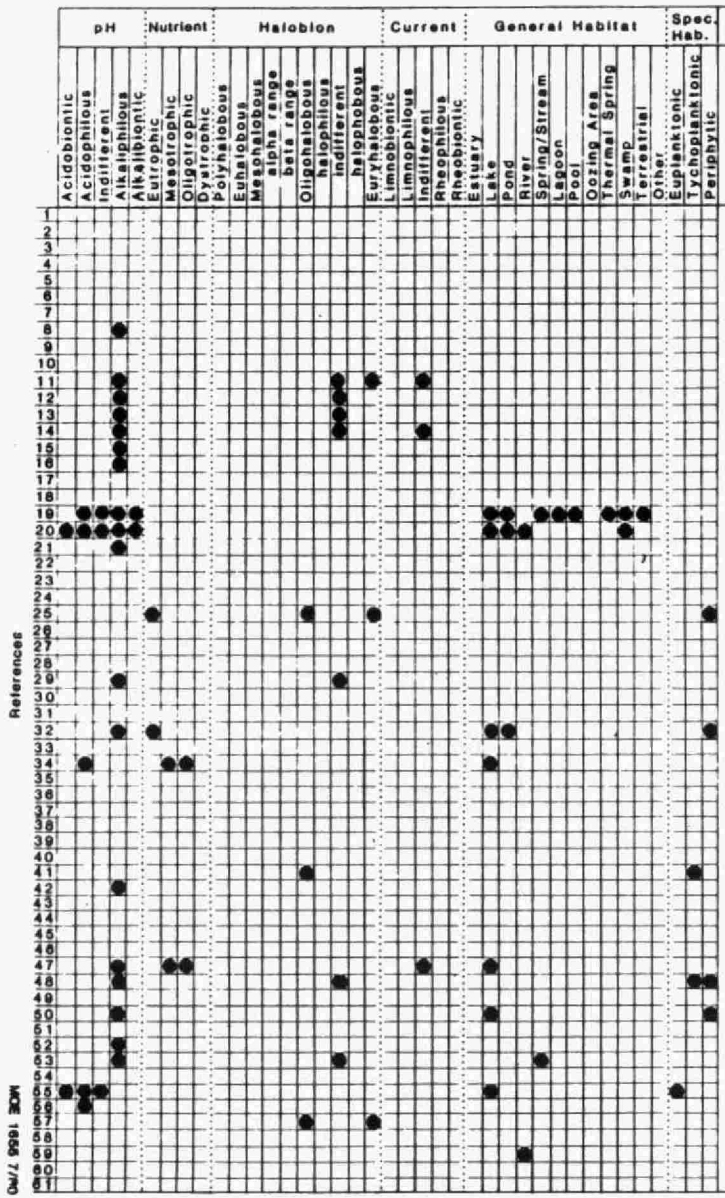
Synonym



20 pH 4.0 +
47 oligothermal
48 "
48 can tolerate
water of
high cond-
uctivity

Taxon Fragilaria construens (Ehr.) Grun. var. construens

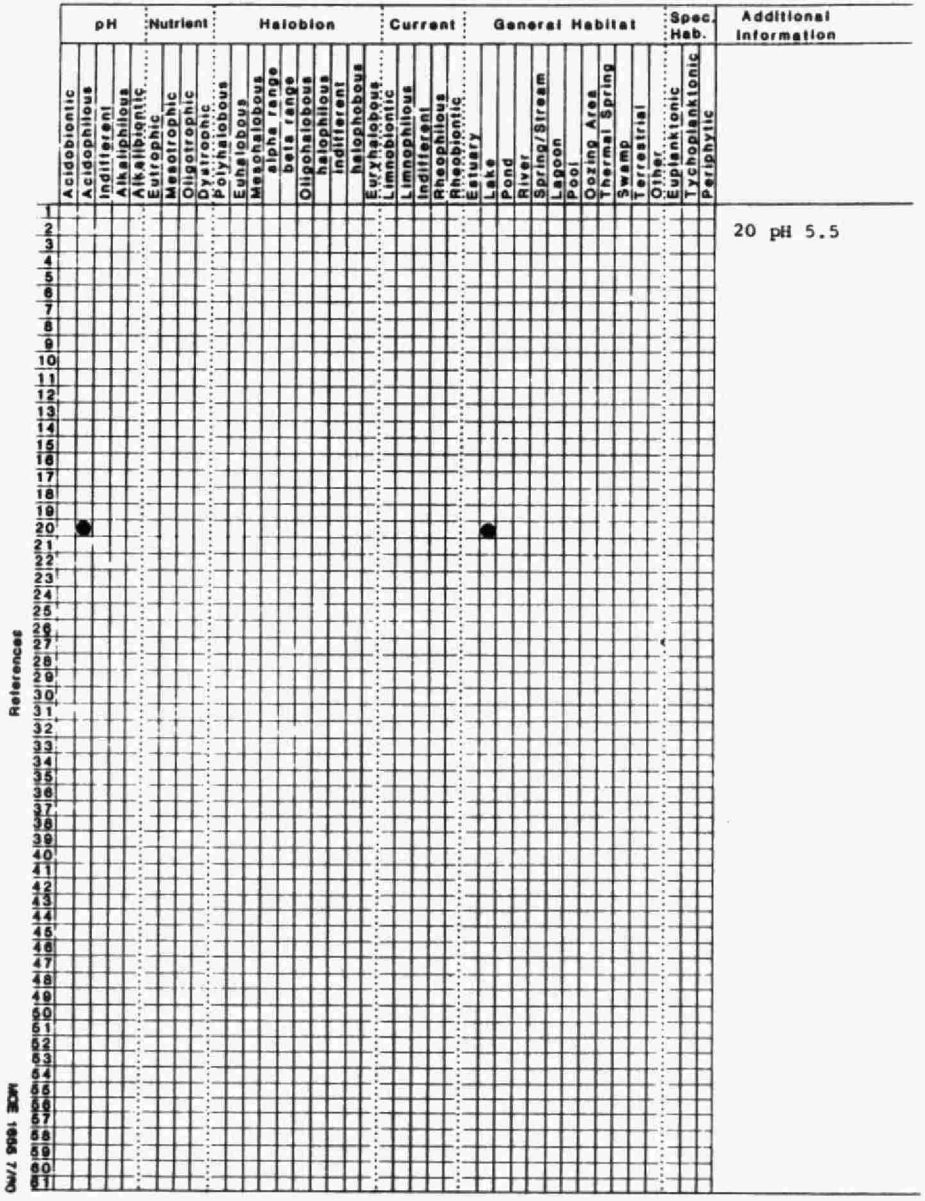
Synonym



8 pH optimum 7.7-7.8
8 indicator of oxygenated wate
10 saprophobic alpha-mesosaprobic
11,32 pH range 6.0-9.0
25,27 cosmopoli tan
29 oligosaprobi
34 found in all seasons
45 calcium indifferent
53 eurythermal oligothermal mesothermal
55 pH 4.7-7.0
56 pH 6.7
56 fall maximum

Taxon Fragilaria construens var. exigua (W. Sm.) Schulz.

Synonym

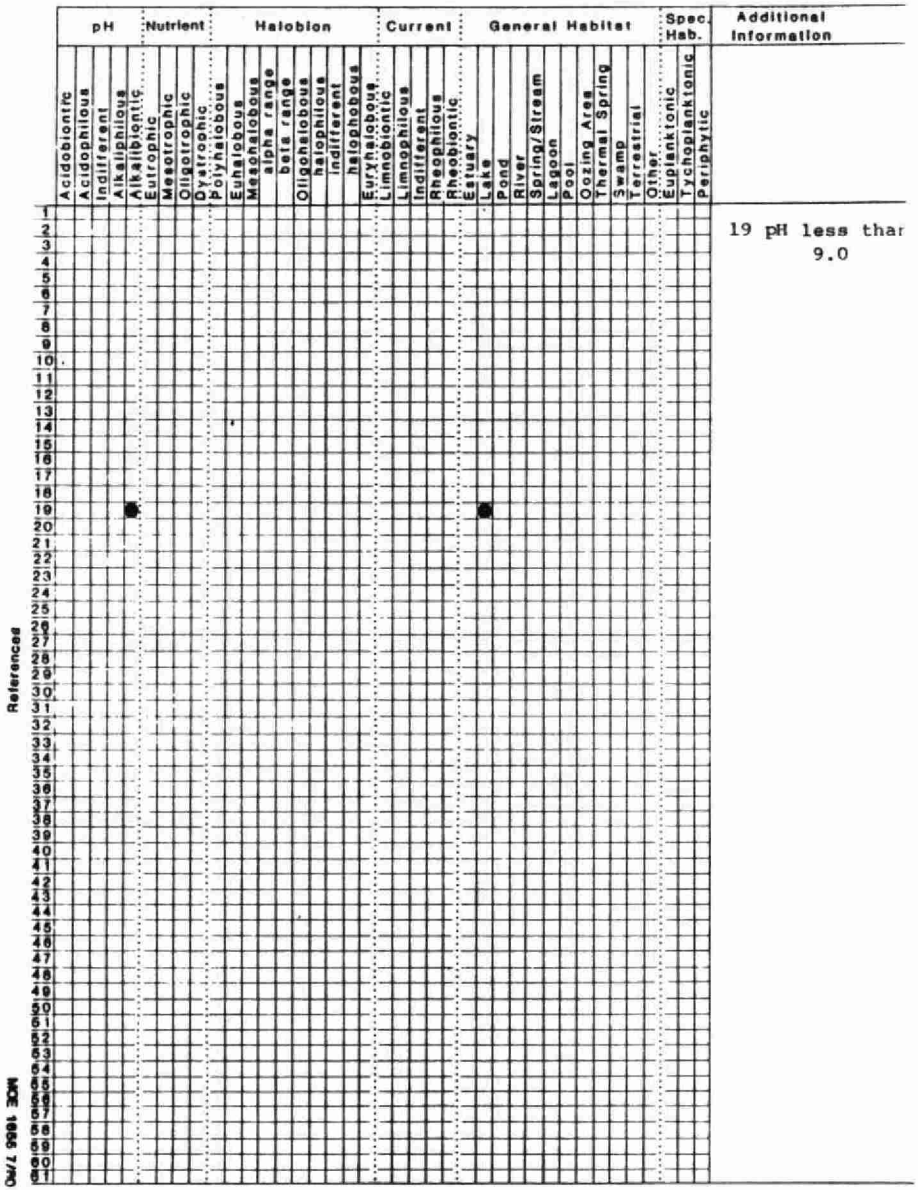


20 pH 5.5

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Taxon Fragilaria construens var. semibinodis Østr.

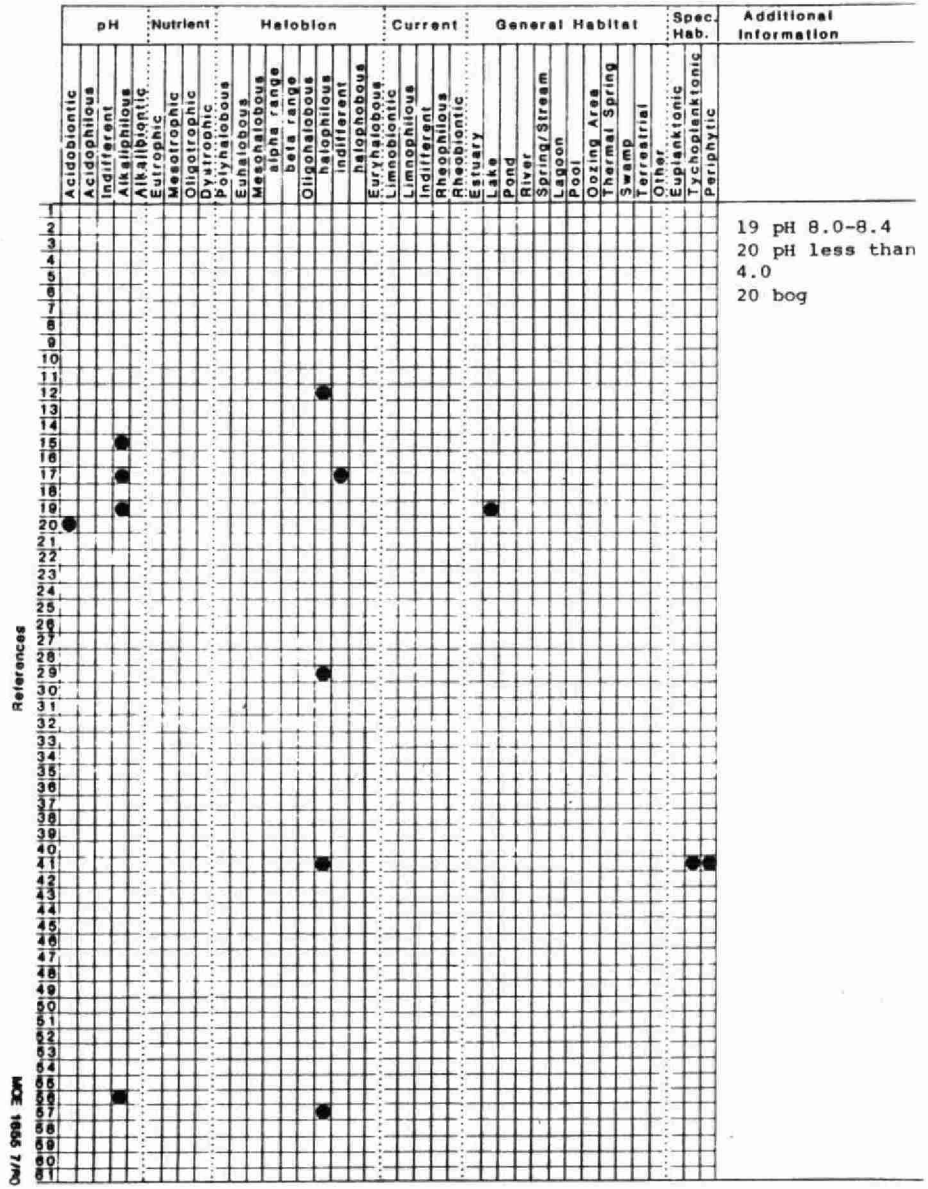
Synonym



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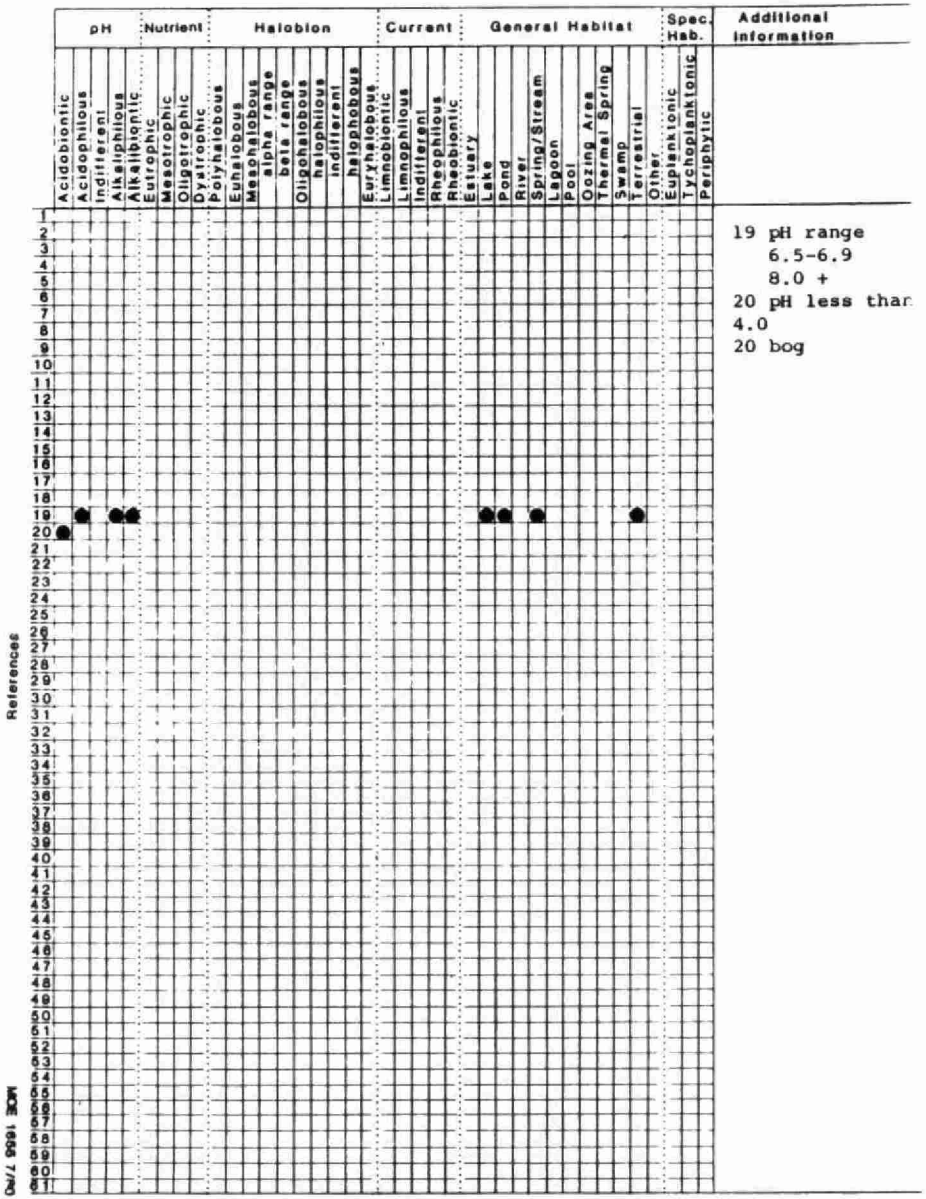
Taxon Fragilaria construens var. subsalina Hust.

Synonym



Taxon Fragilaria construens var. triundulata Reich.

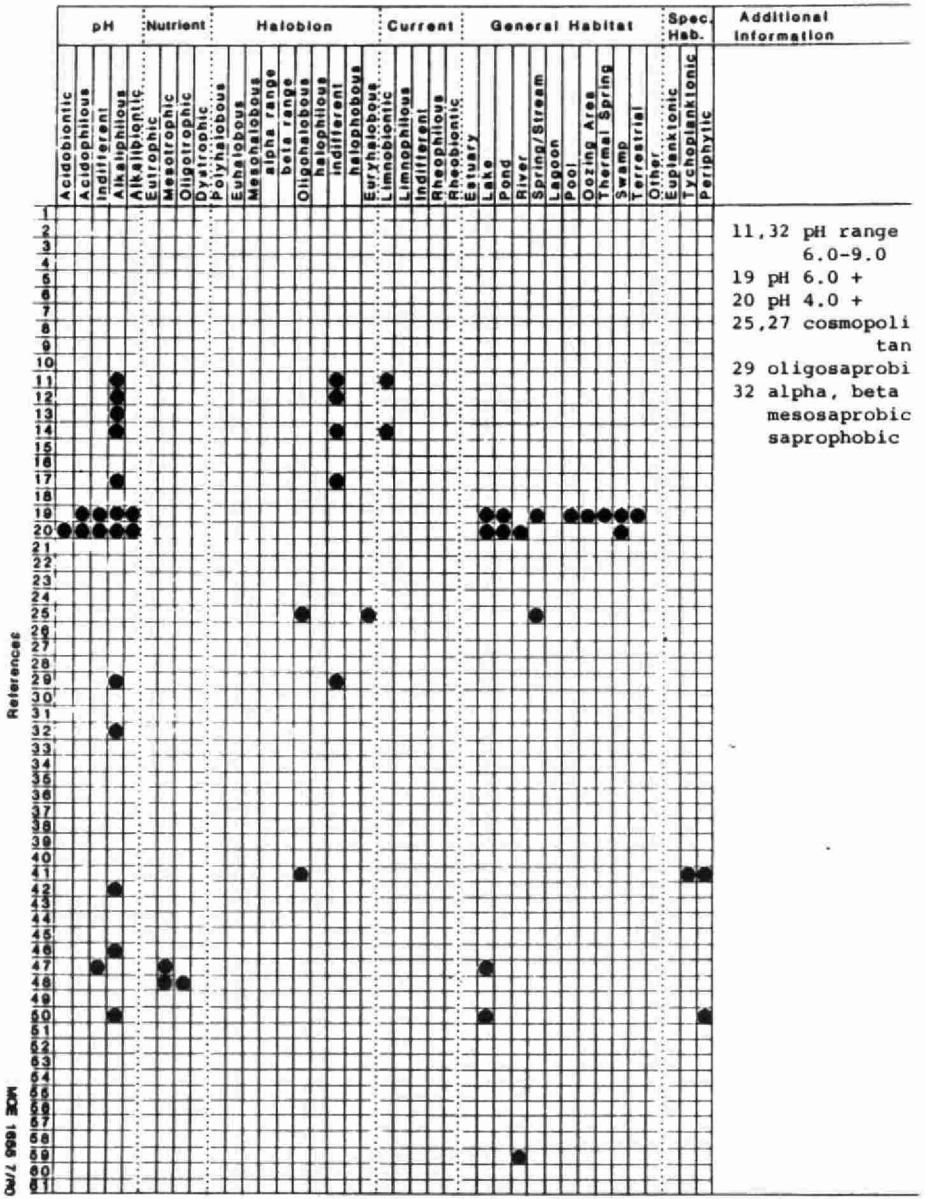
Synonym



19 pH range
6.5-6.9
8.0 +
20 pH less than
4.0
20 bog

Taxon Fragilaria construens var. venter (Ehr.) Grun.

Synonym

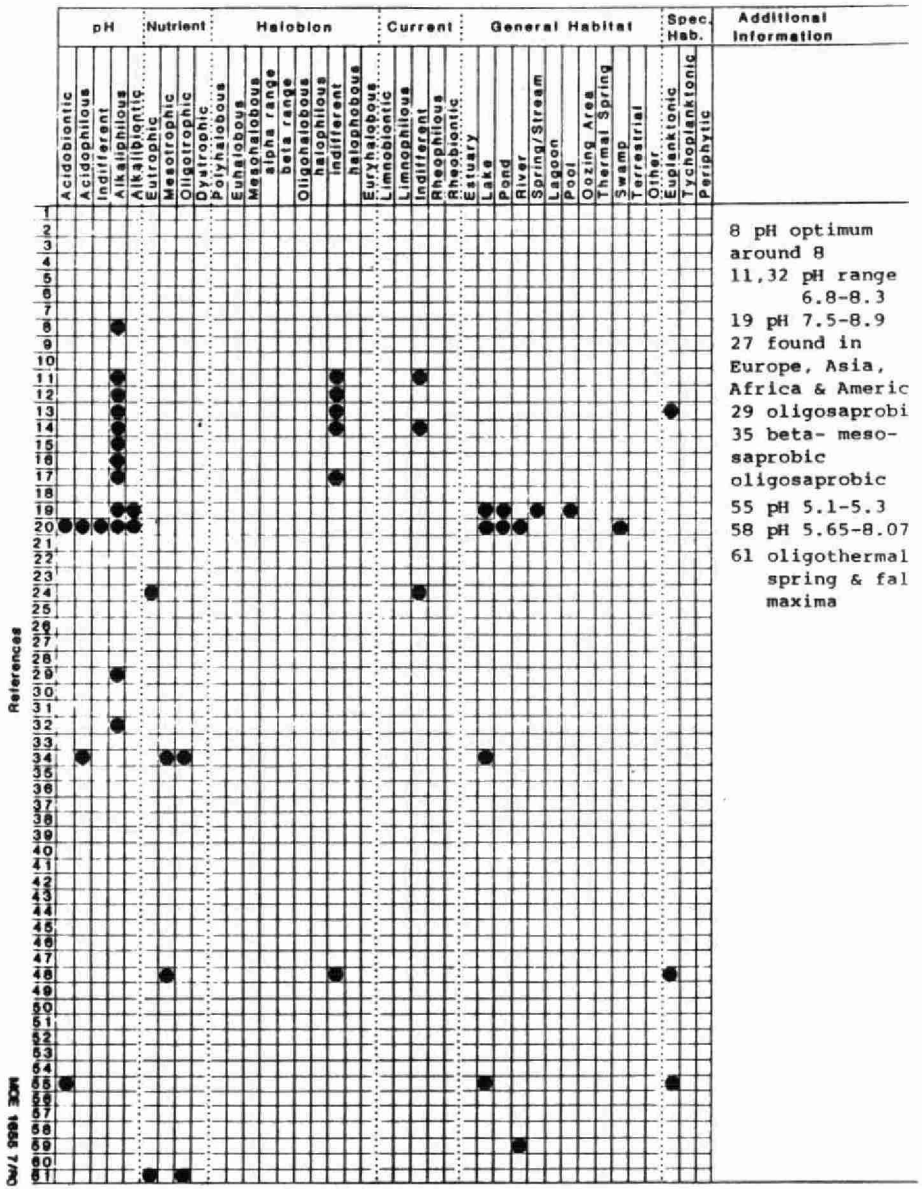


11,32 pH range
6.0-9.0
19 pH 6.0 +
20 pH 4.0 +
25,27 cosmopolitan
29 oligosaprobic
32 alpha, beta mesosaprobic saprophobic

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Taxon Fragilaria crotonensis Kitton var. crotonensis

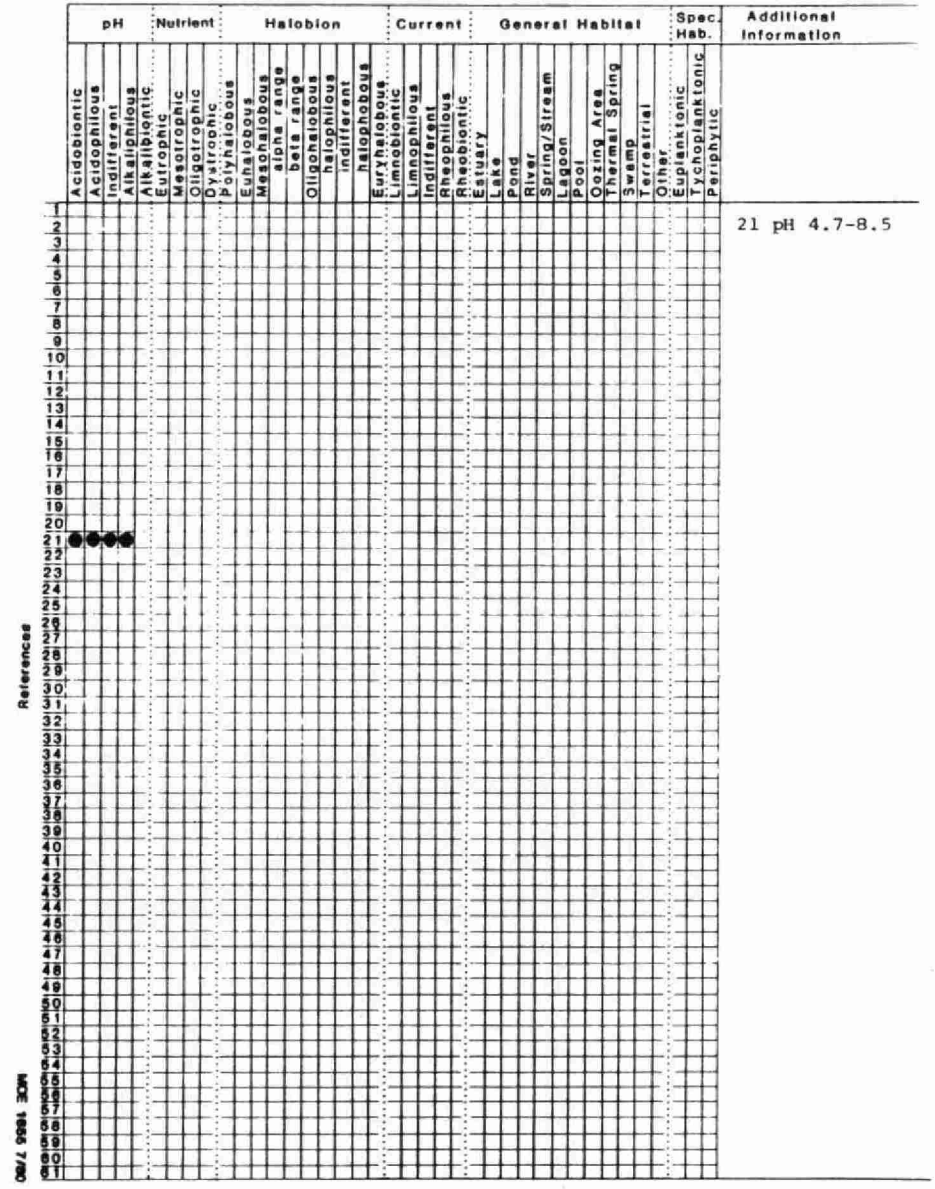
Synonym Fragilaria crotonensis var. prolongata Grun.



8 pH optimum around 8
11,32 pH range 6.8-8.3
19 pH 7.5-8.9
27 found in Europe, Asia, Africa & Americ
29 oligosaprobi
35 beta- meso- saprobic oligosaprobic
55 pH 5.1-5.3
58 pH 5.65-8.07
61 oligothermal spring & fal maxima

Taxon Fragilaria familiaris (Kg.) Hust.

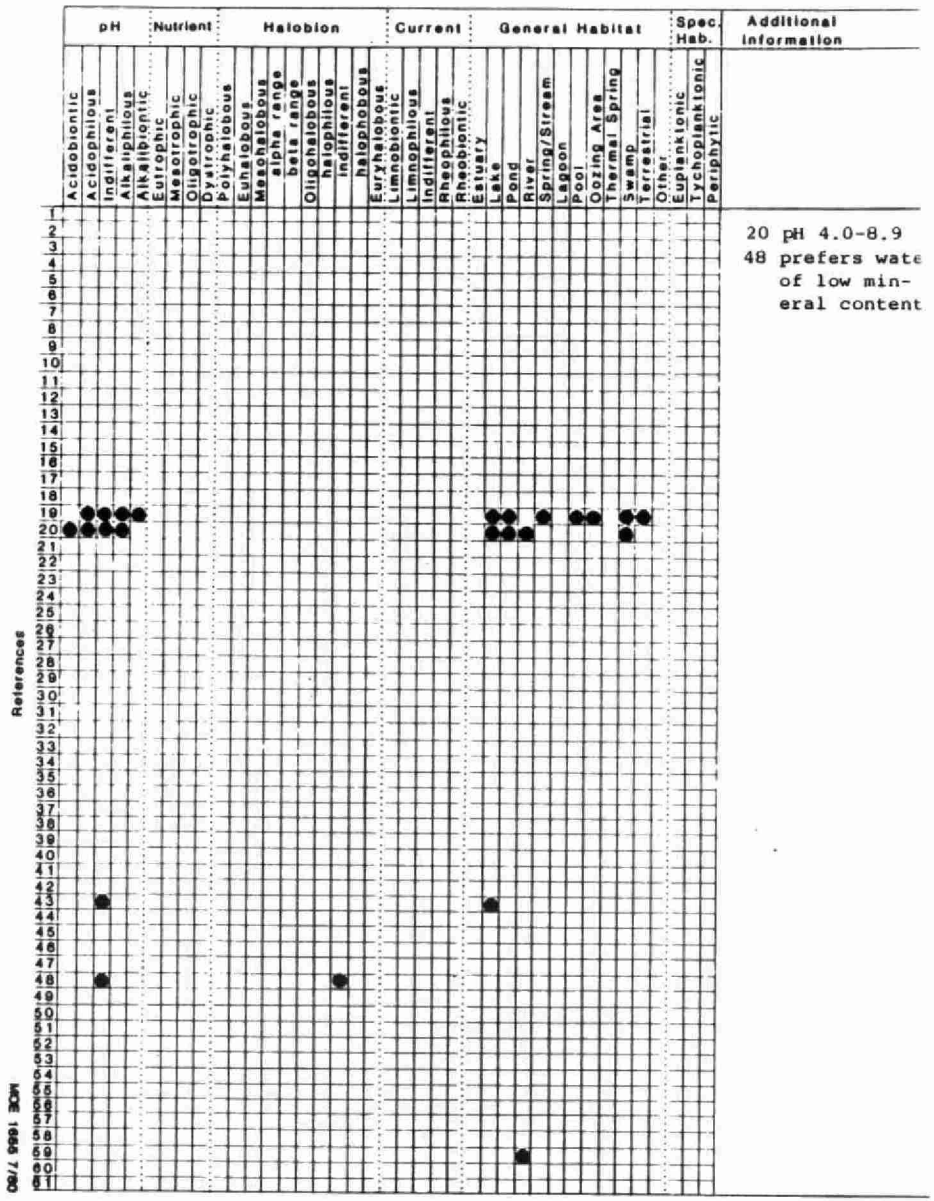
Synonym



21 pH 4.7-8.5

Taxon Fragilaria lapponica Grun.

Synonym

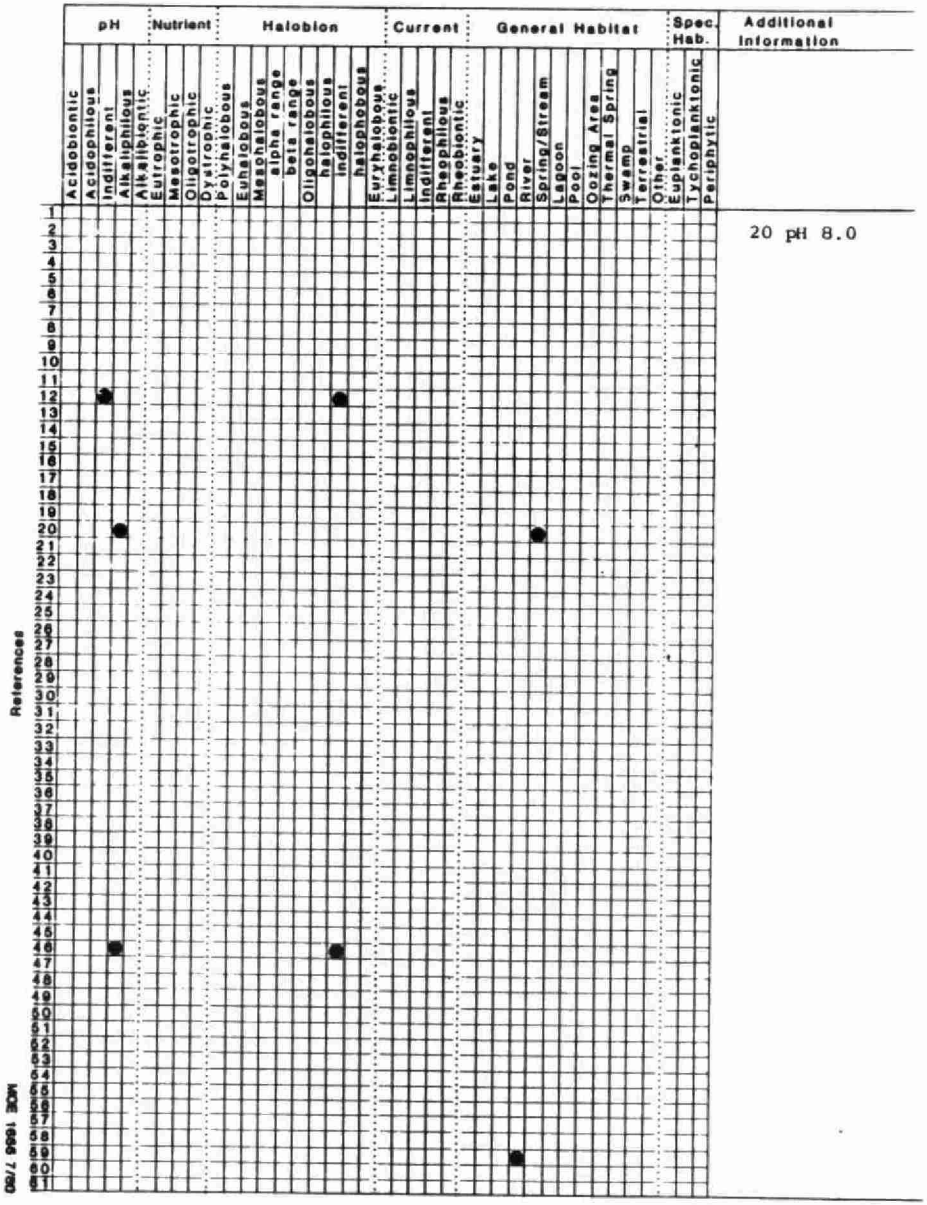


20 pH 4.0-8.9

48 prefers wate of low min- eral content

Taxon Fragilaria leptostauron var. dubia (Grun.)Hust.

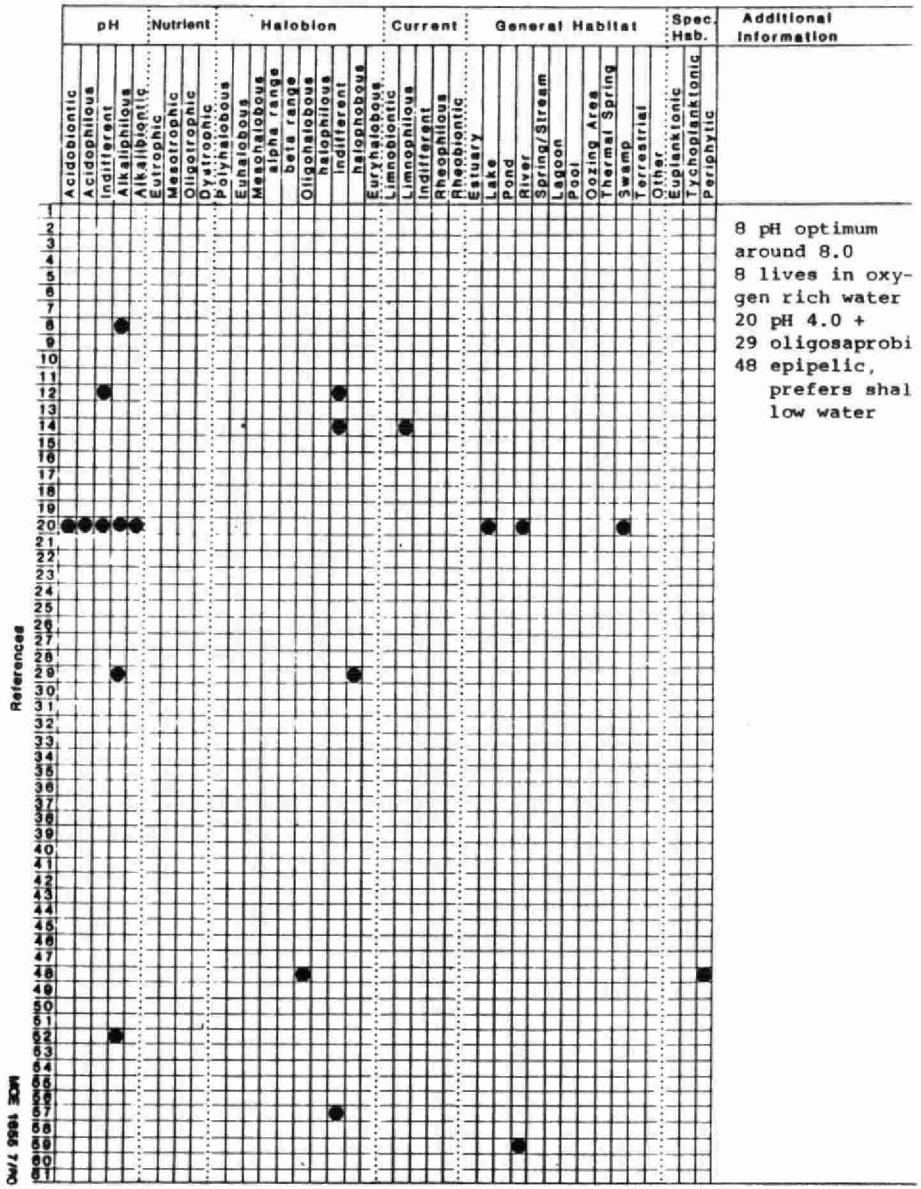
Synonym Fragilaria harrisonii var. dubia Grun.



20 pH 8.0

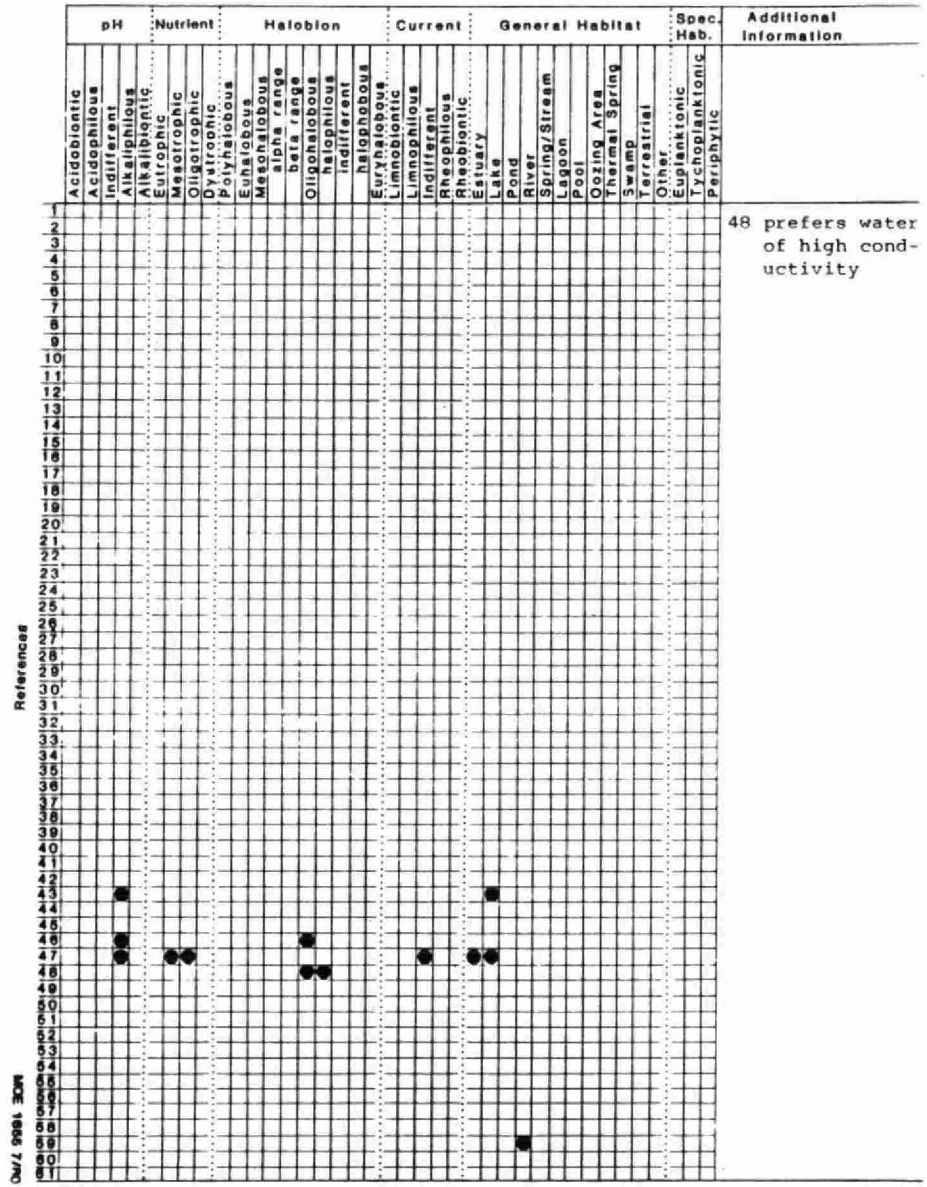
Taxon Fragilaria leptostauron (Ehr.) Hust. var. leptostauron

Synonym Fragilaria harrissonii (W.Sm.) Grun.



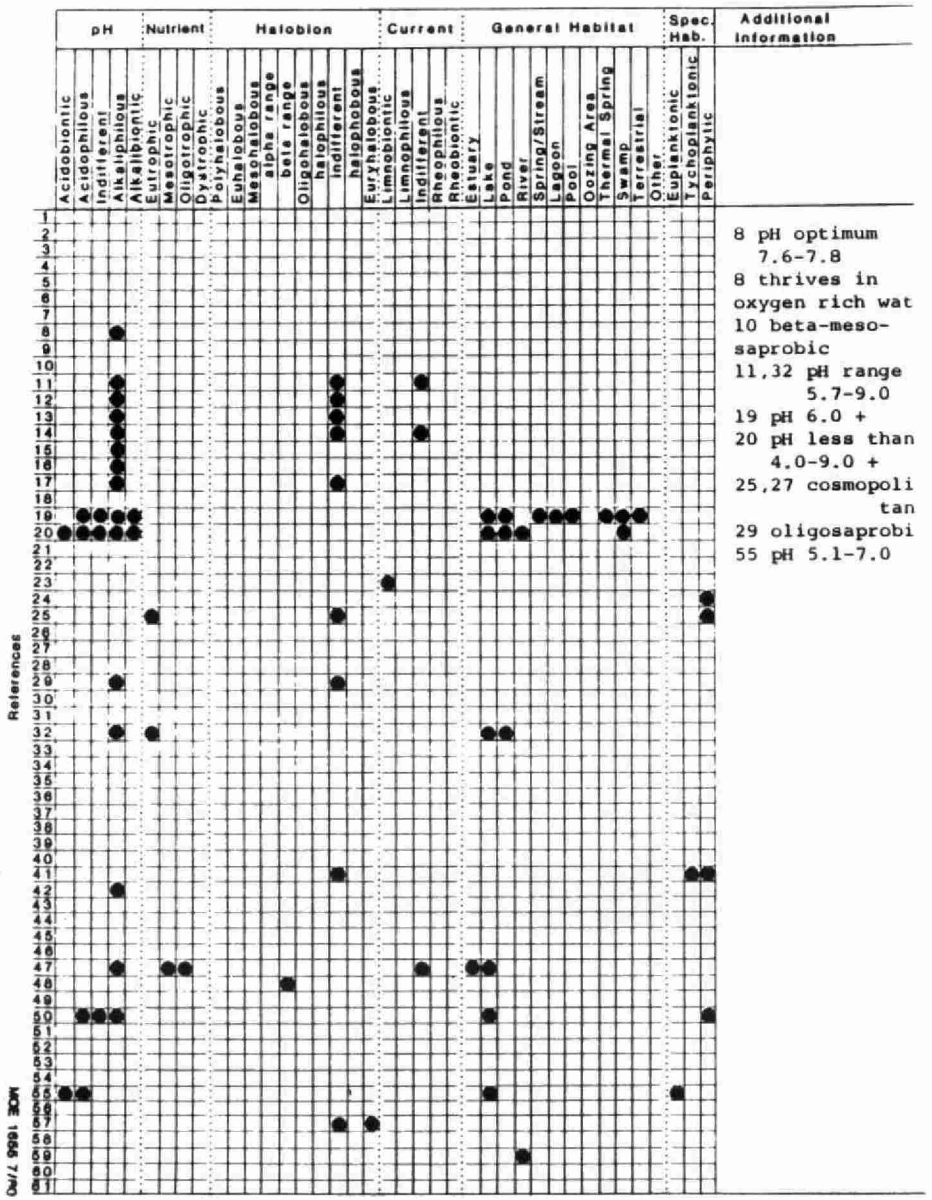
Taxon Fragilaria pinnata var. lancettula (Schum.) Hust.

Synonym



Taxon Fragilaria pinnata Ehr. var. pinnata

Synonym Fragilaria elliptica Schum.

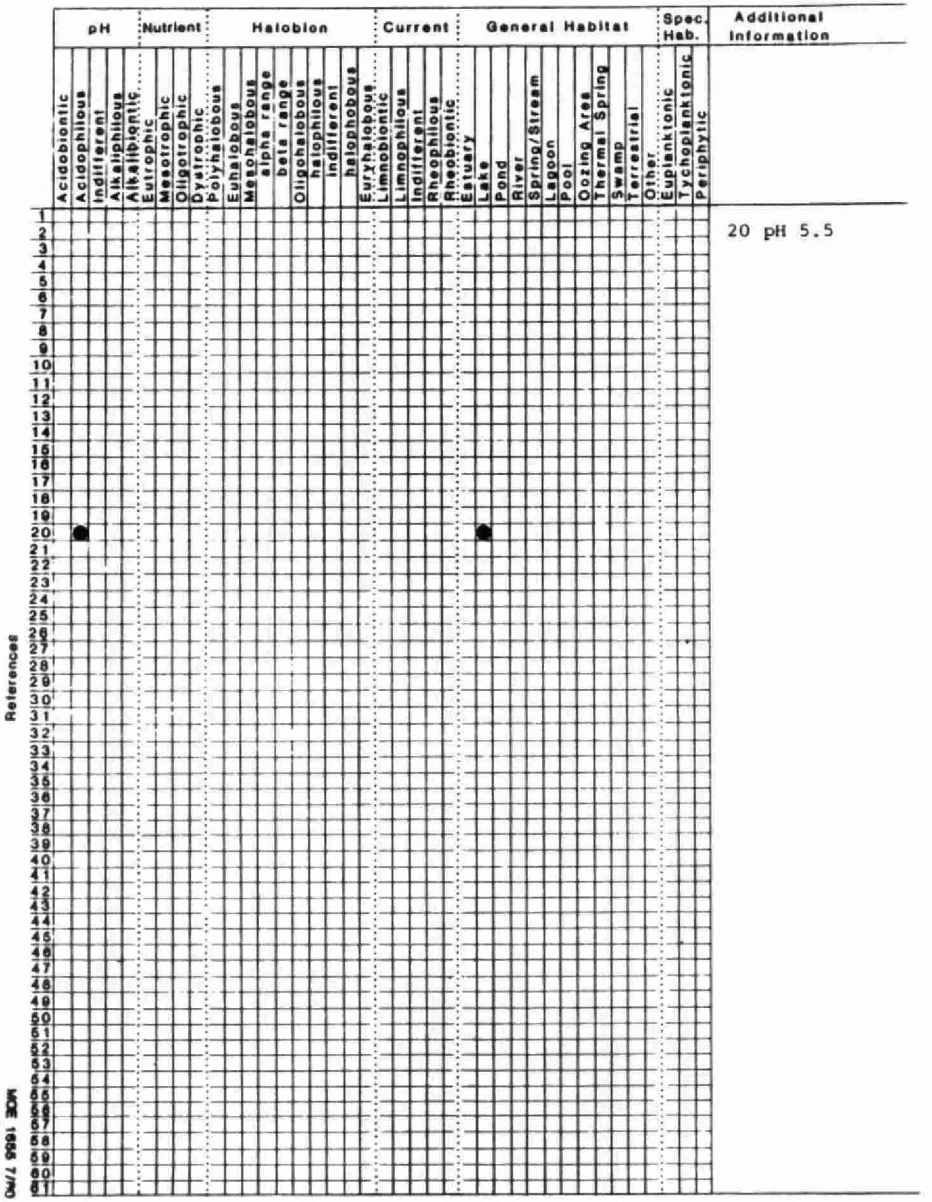


Additional information

8 pH optimum 7.6-7.8
8 thrives in oxygen rich wat
10 beta-meso-saprobic
11,32 pH range 5.7-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 oligosaprobi
55 pH 5.1-7.0

Taxon Fragilaria pinnata var. trigona (Brun. & Herib.) Hust.

Synonym



Additional information

20 pH 5.5

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Taxon Fragilaria polygonata

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/no

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Taxon Fragilaria ungeriana

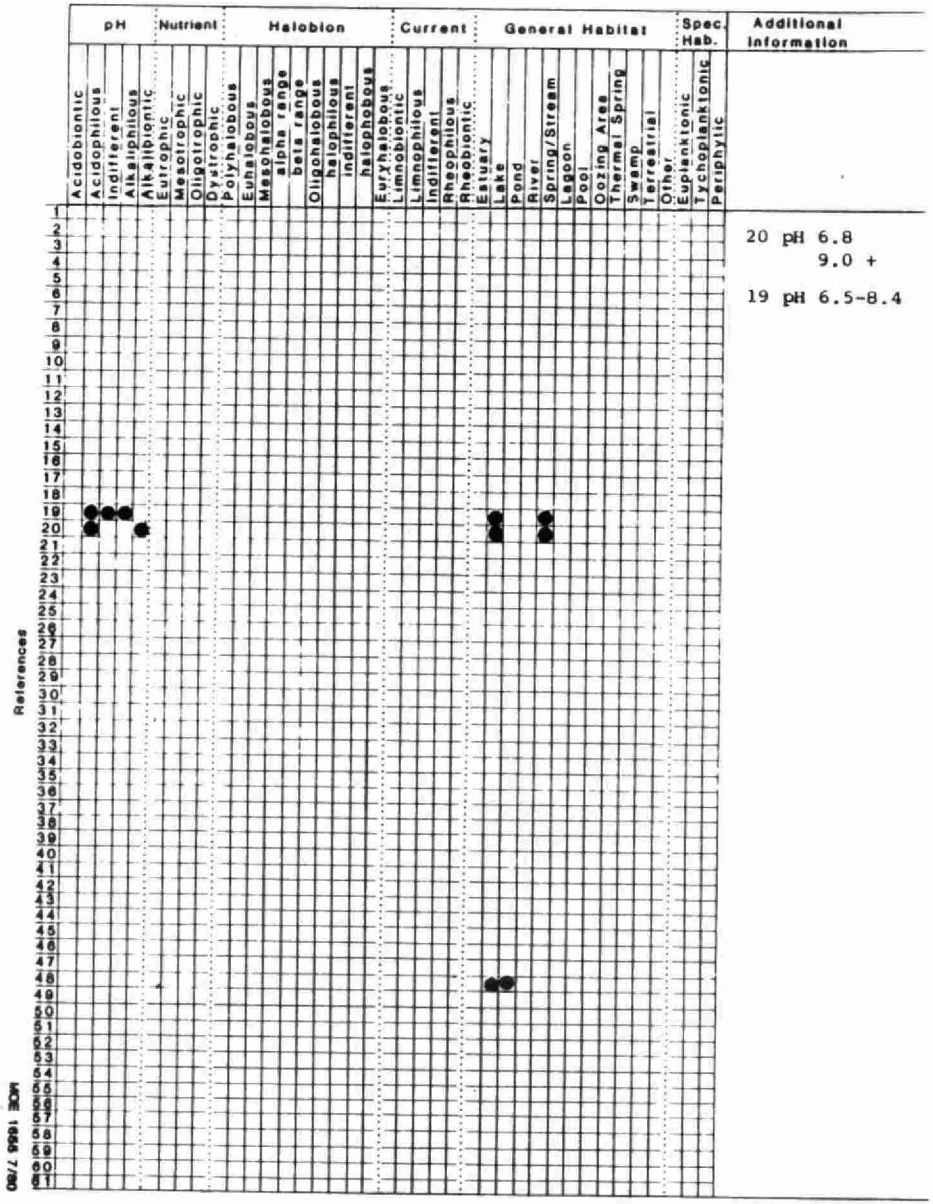
Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Fragilaria vaucheriae var. capitellata (Grun.) Patr.

Synonym Synedra vaucheriae var capitellata Grun.



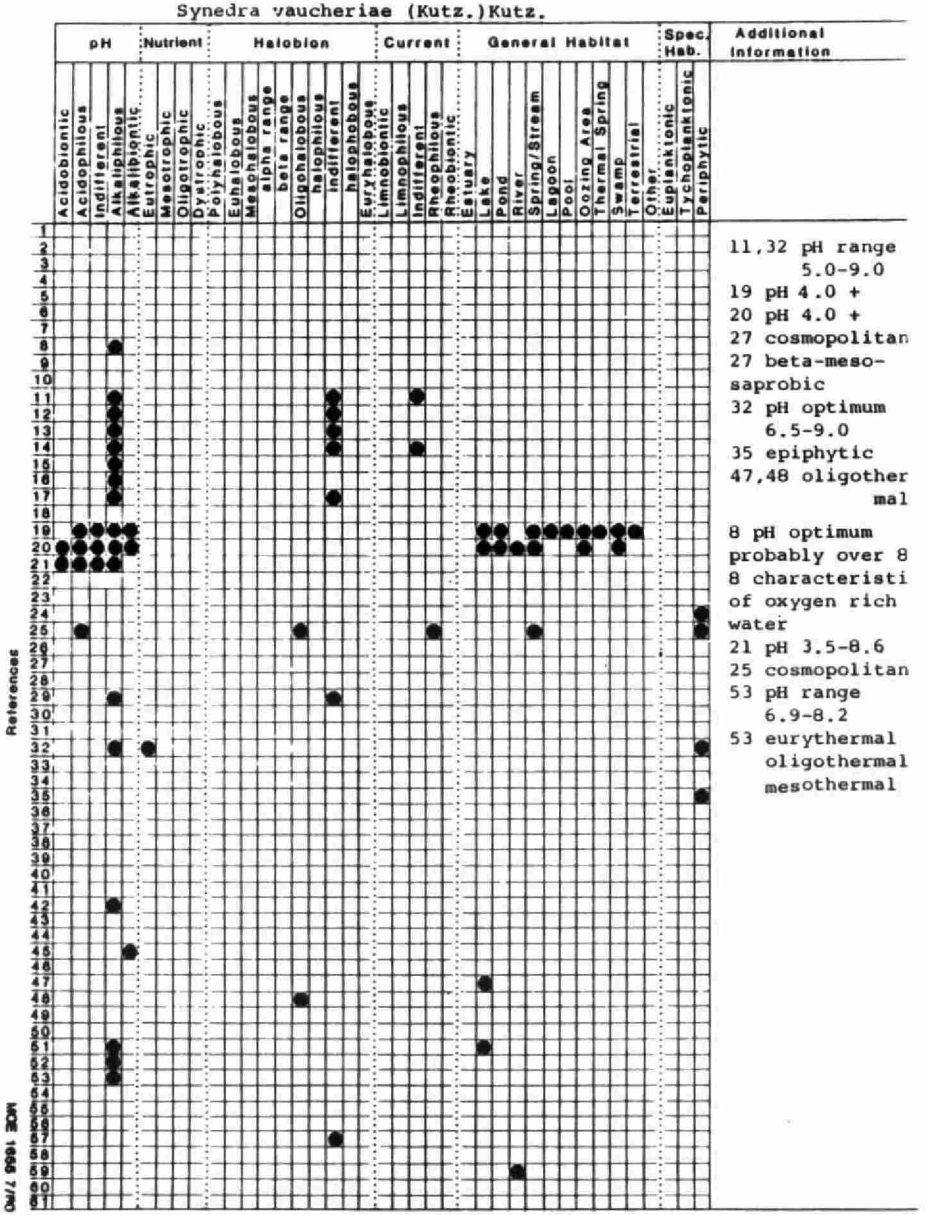
20 pH 6.8
9.0 +

19 pH 6.5-8.4

Taxon Fragilaria vaucheriae (Kutz.) Peter. var. vaucheriae

Synonym Fragilaria intermedia Grun. var. intermedia

Synedra vaucheriae (Kutz.)Kutz.



11,32 pH range
5.0-9.0
19 pH 4.0 +
20 pH 4.0 +
27 cosmopolitan
27 beta-meso-saprobic
32 pH optimum 6.5-9.0
35 epiphytic
47,48 oligothermal

8 pH optimum probably over 8
8 characteristi of oxygen rich water
21 pH 3.5-8.6
25 cosmopolitan
53 pH range 6.9-8.2
53 eurythermal oligothermal mesothermal

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Taxon Fragilaria virescens var. elliptica Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19	●	●	●	●	●																				●	●		●			●	●	●	●	●					19 pH 5.5 +
20	●	●	●	●	●																				●	●	●	●	●					●						20 pH 4.0 +
52		●																																					

MOE 1865 7/80

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Taxon Fragilaria virescens var. subsalina Grun.

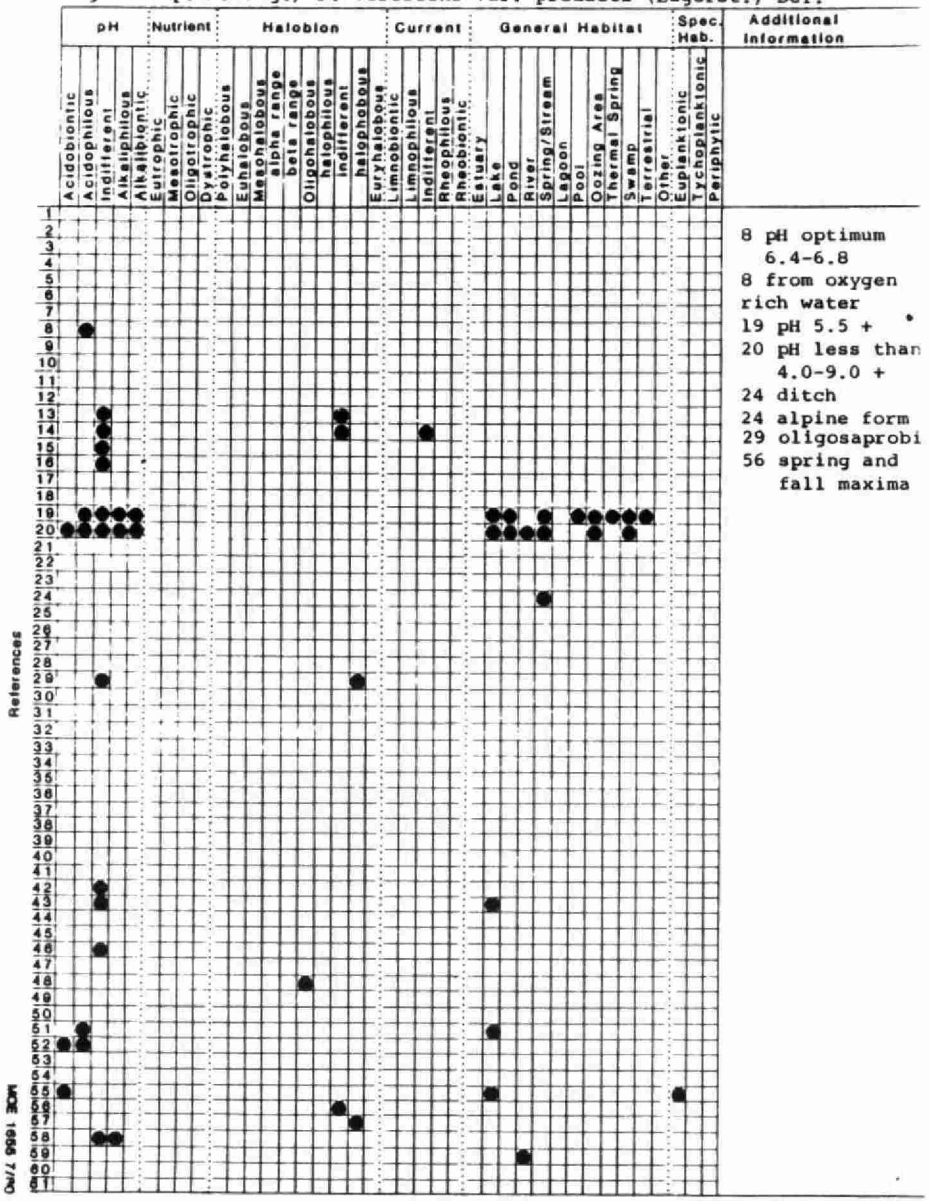
Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19		●	●	●	●																				●	●					●		●							19 pH 6.5-6.9
																																							9.0 +
20	●	●	●	●	●																				●	●								●						20 pH 4.0 +

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Taxon Fragilaria virescens Ralfs var. virescens

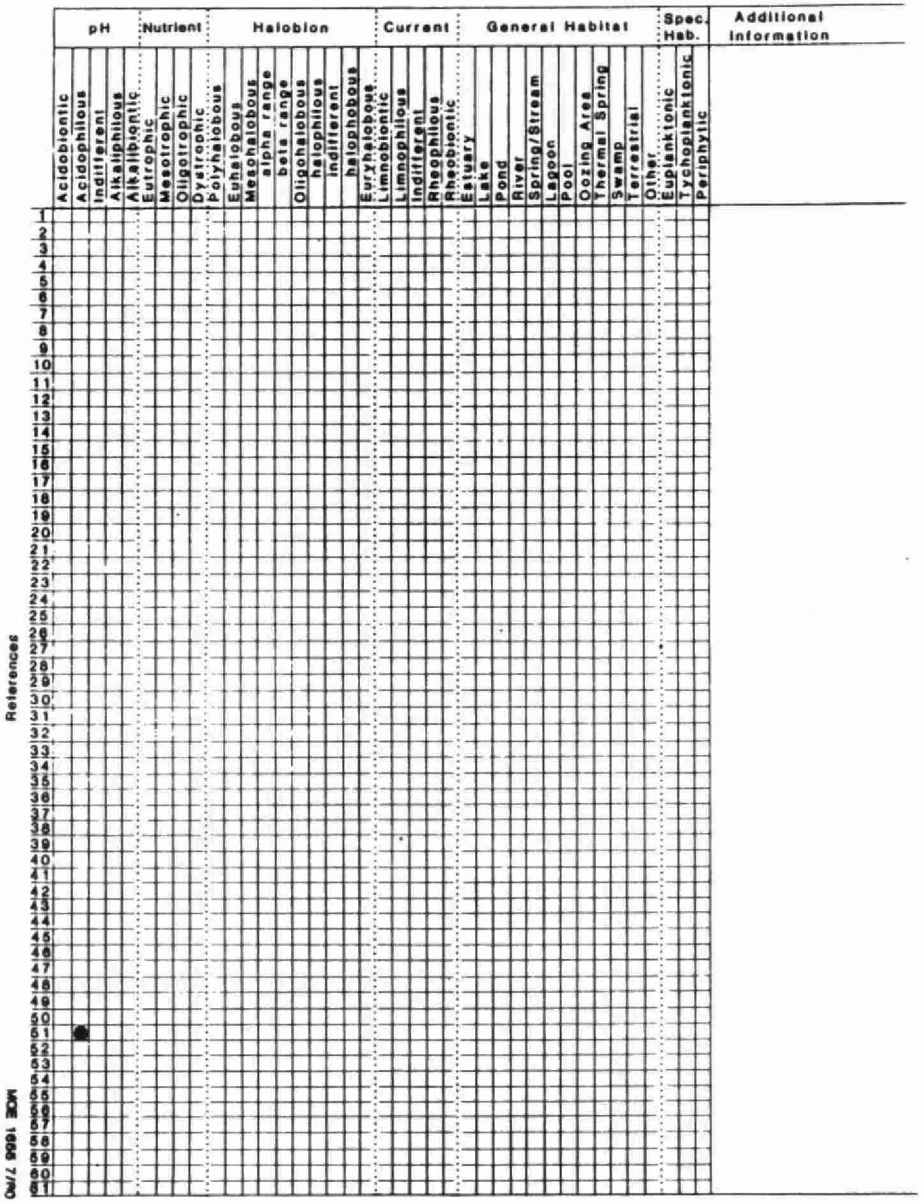
Synonym Fragilaria pectinalis Ehr./ F. aequalis Heib./ F. aequalis va major Temp.& Perag./ F. virescens var. producta (Lagerst.) DeT.



8 pH optimum 6.4-6.8
8 from oxygen rich water
19 pH 5.5 +
20 pH less than 4.0-9.0 +
24 ditch
24 alpine form
29 oligosaprobi
56 spring and fall maxima

Taxon Frustulia sp.

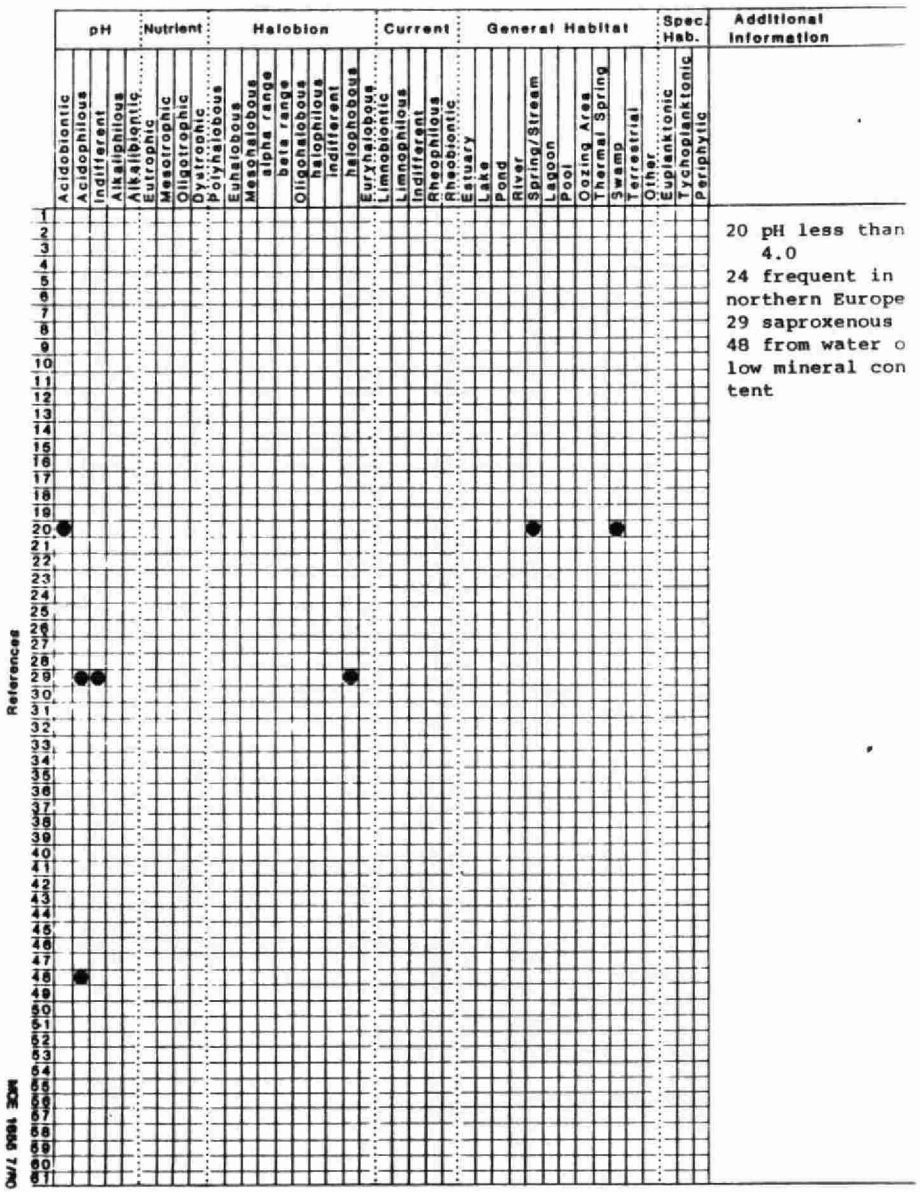
Synonym



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Taxon Frustulia rhomboides var. amphipleuroides (Grun.) Cl.

Synonym

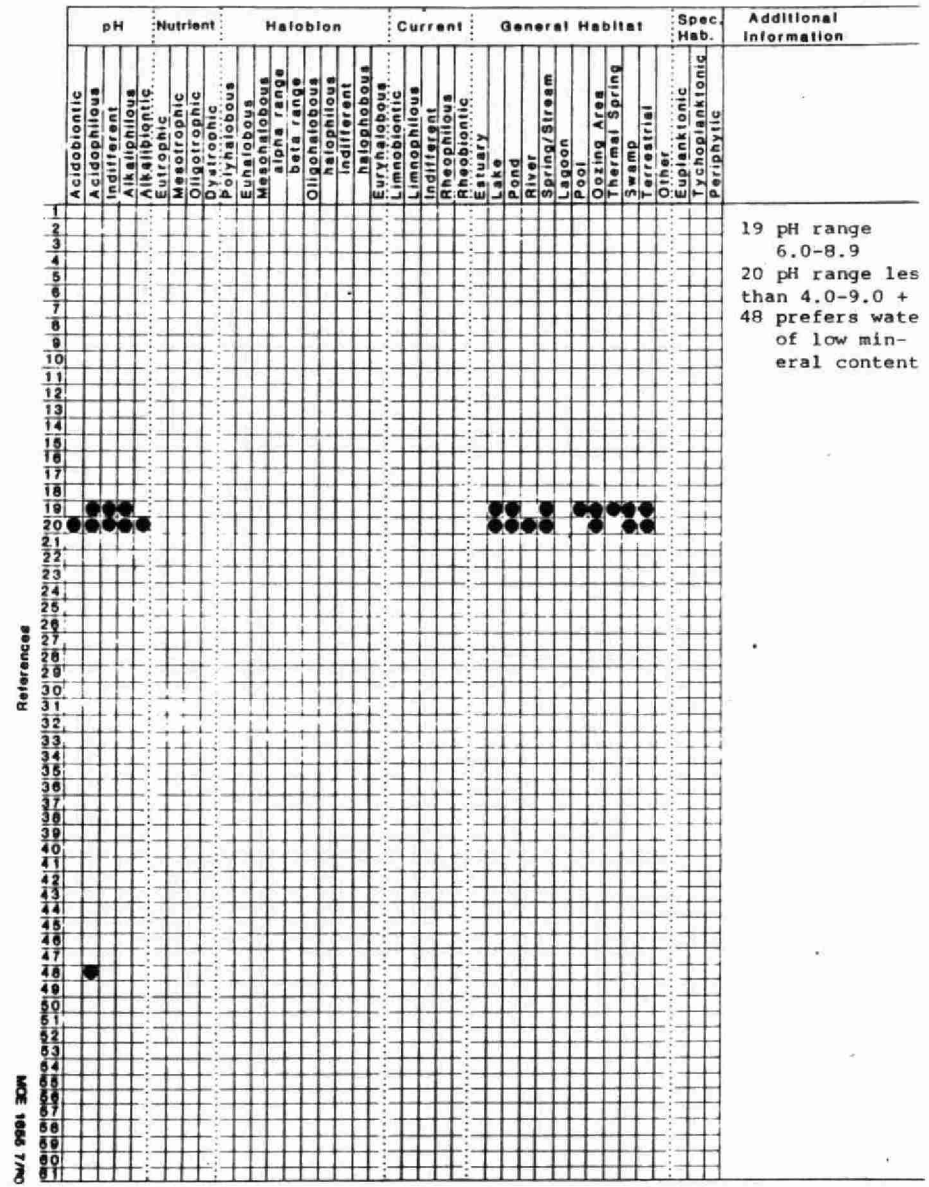


20 pH less than 4.0
24 frequent in northern Europe
29 saproxenous
48 from water o low mineral con tent

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Taxon Frustulia rhomboides var. capitata (A. Mayer) Patr.

Synonym Frustulia rhomboides var. saxonica f. capitata (A. Mayer) Hus

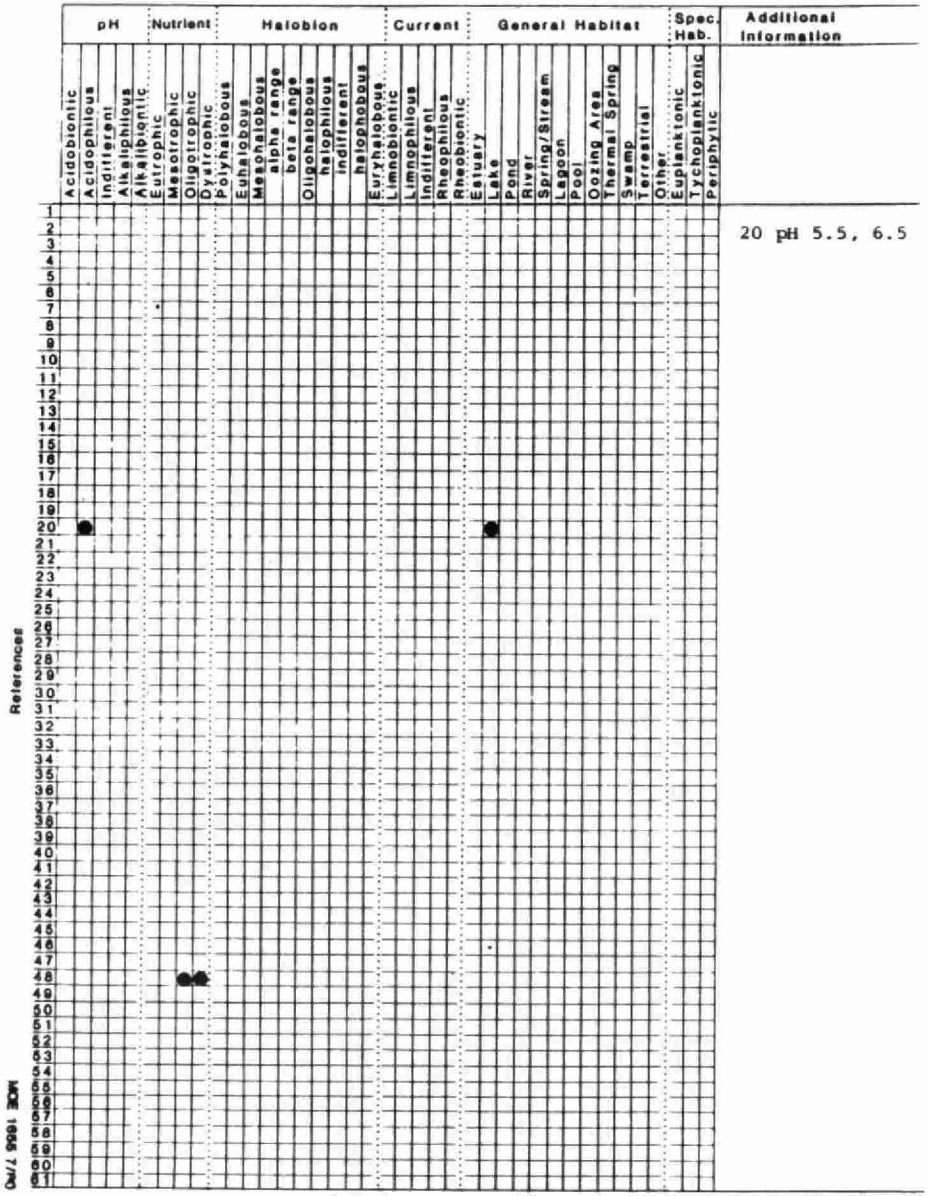


19 pH range 6.0-8.9
20 pH range les than 4.0-9.0 +
48 prefers wate of low min- eral content

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Taxon Frustulia rhomboides var. crassinervia (Breb. ex W. Sm.) Ross

Synonym

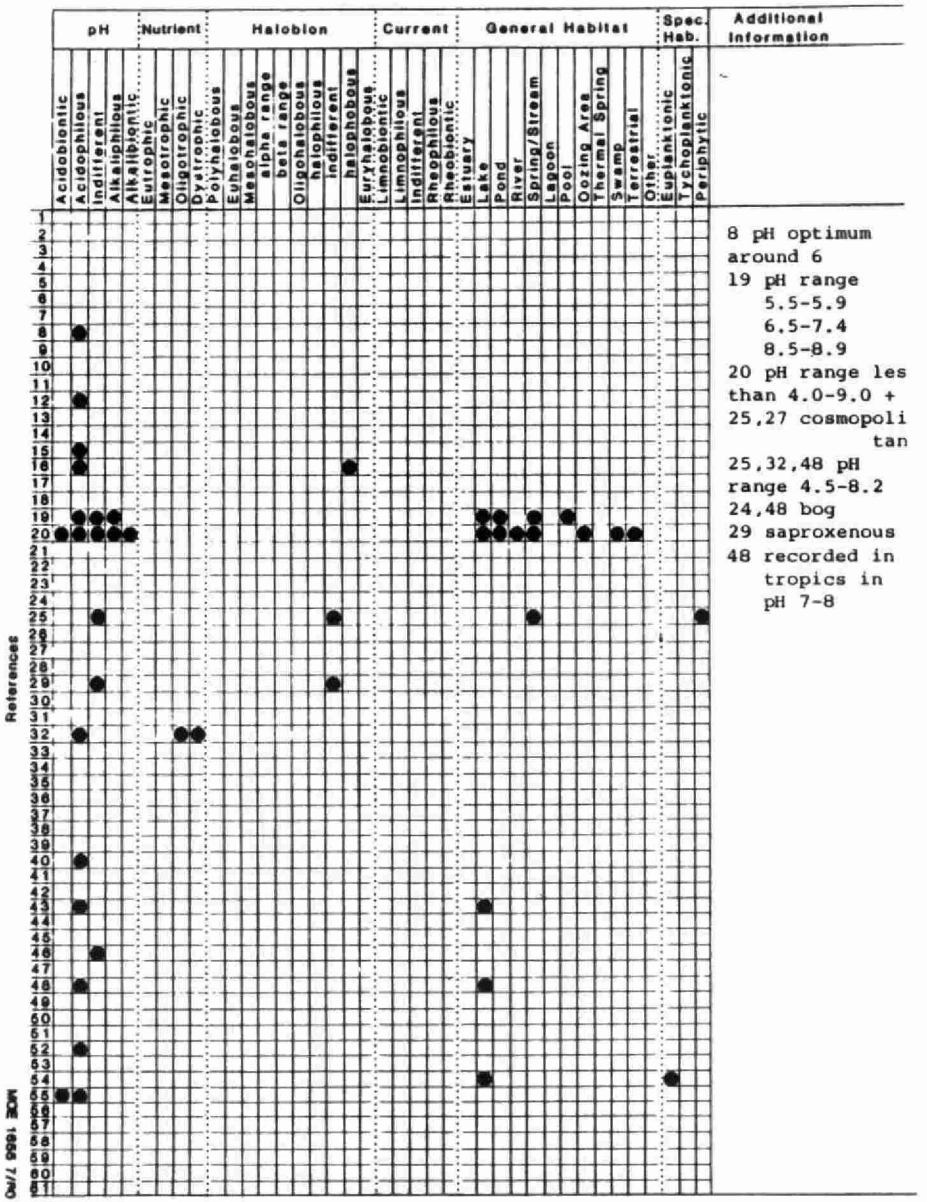


20 pH 5.5, 6.5

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Taxon Frustulia rhomboides (Ehr.) DeT. var. rhomboides

Synonym

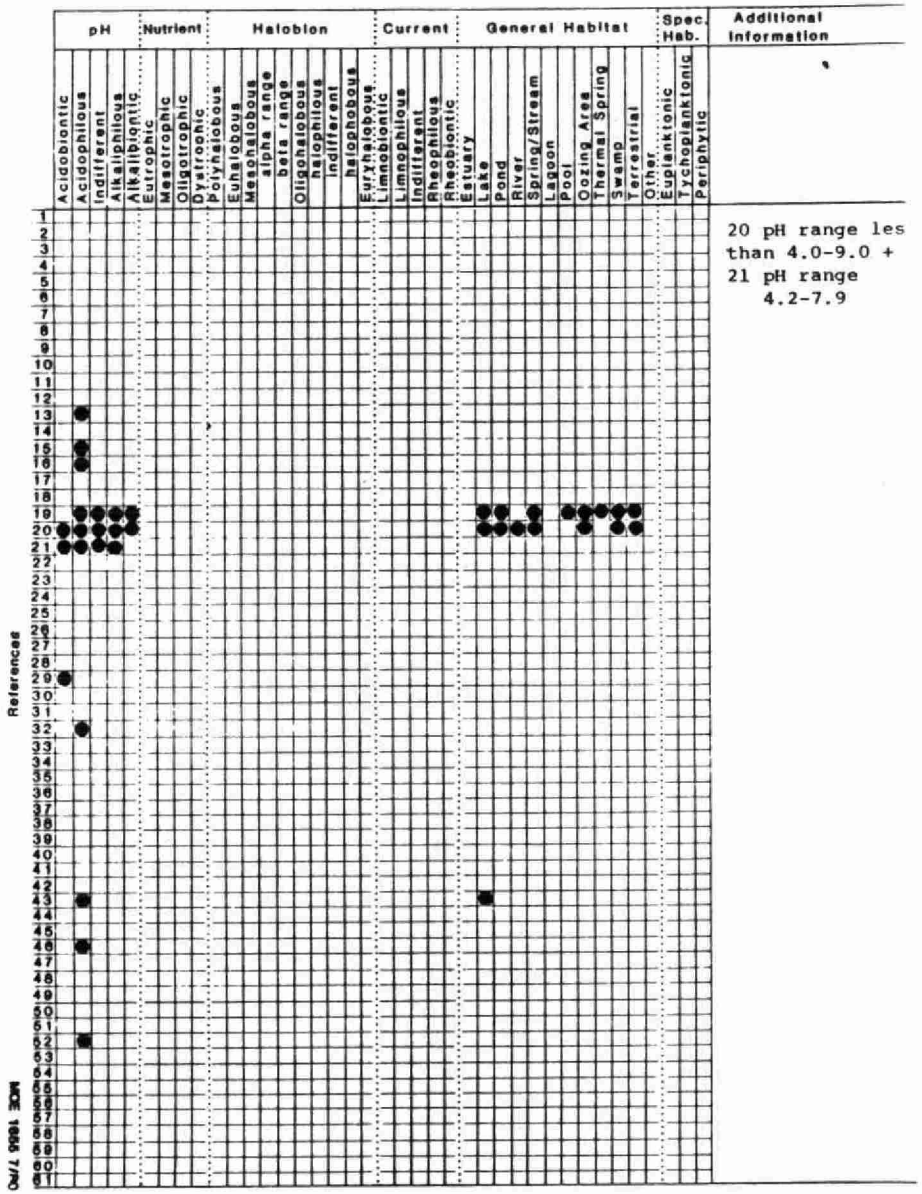


8 pH optimum around 6
19 pH range
5.5-5.9
6.5-7.4
8.5-8.9
20 pH range les than 4.0-9.0 +
25,27 cosmopoli tan
25,32,48 pH range 4.5-8.2
24,48 bog
29 saproxenous
48 recorded in tropics in pH 7-8

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Taxon Frustulia rhomboides var. saxonica (Rabh.) DeT.

Synonym

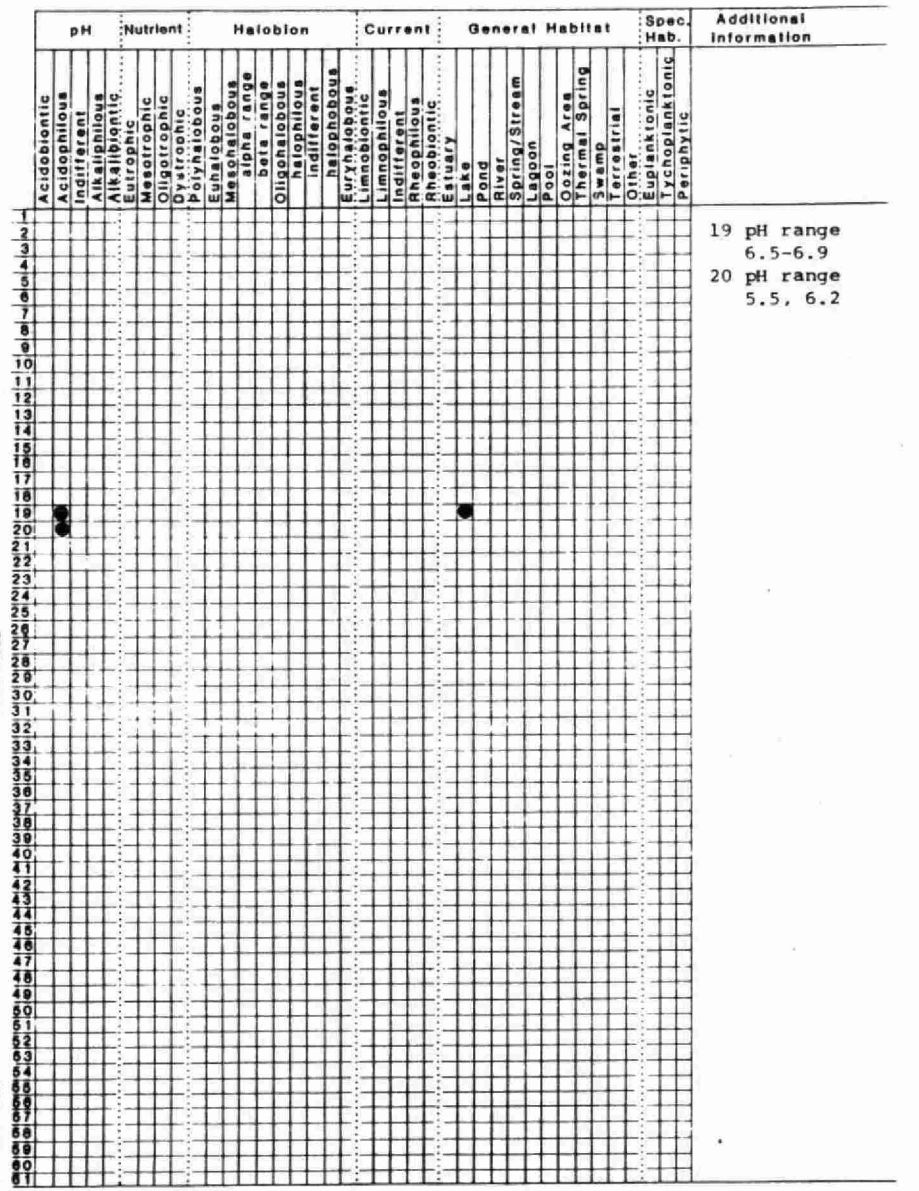


20 pH range les than 4.0-9.0 + 21 pH range 4.2-7.9

Ministry of the Environment
Ontario

Taxon Frustulia rhomboides var. saxonica f. undulata Hust.

Synonym

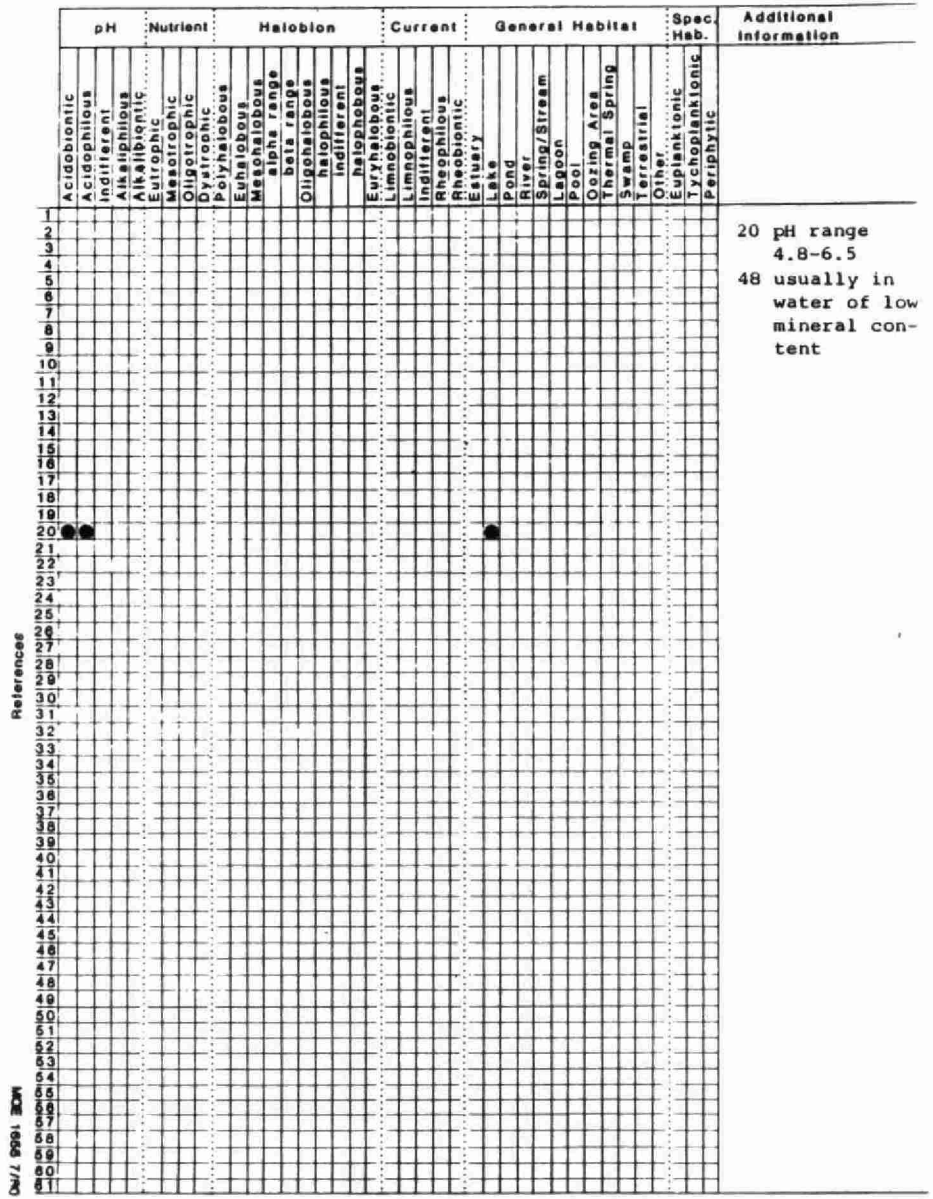


19 pH range 6.5-6.9
20 pH range 5.5, 6.2

Ministry of the Environment
Ontario

Taxon Frustulia rhomboides var. viridula (Breb.) Cl.

Synonym Frustulia viridula (Breb.) DeT.



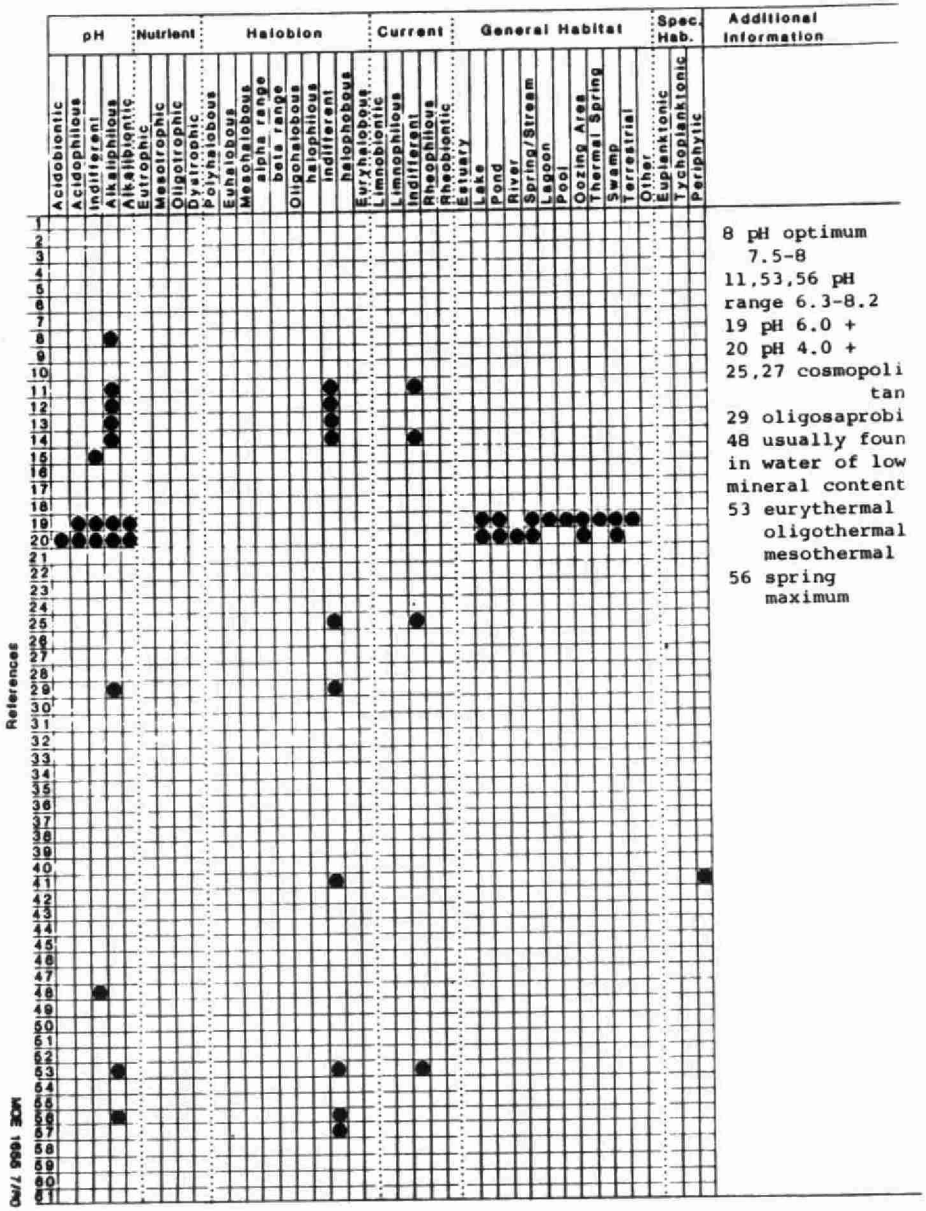
20 pH range 4.8-6.5

48 usually in water of low mineral content

Ministry of the Environment
Ontario

Taxon Frustulia vulgaris (Thw.) DeT.

Synonym



8 pH optimum 7.5-8

11,53,56 pH range 6.3-8.2

19 pH 6.0 +

20 pH 4.0 +

25,27 cosmopolitan

29 oligosaprobi

48 usually foun in water of low mineral content

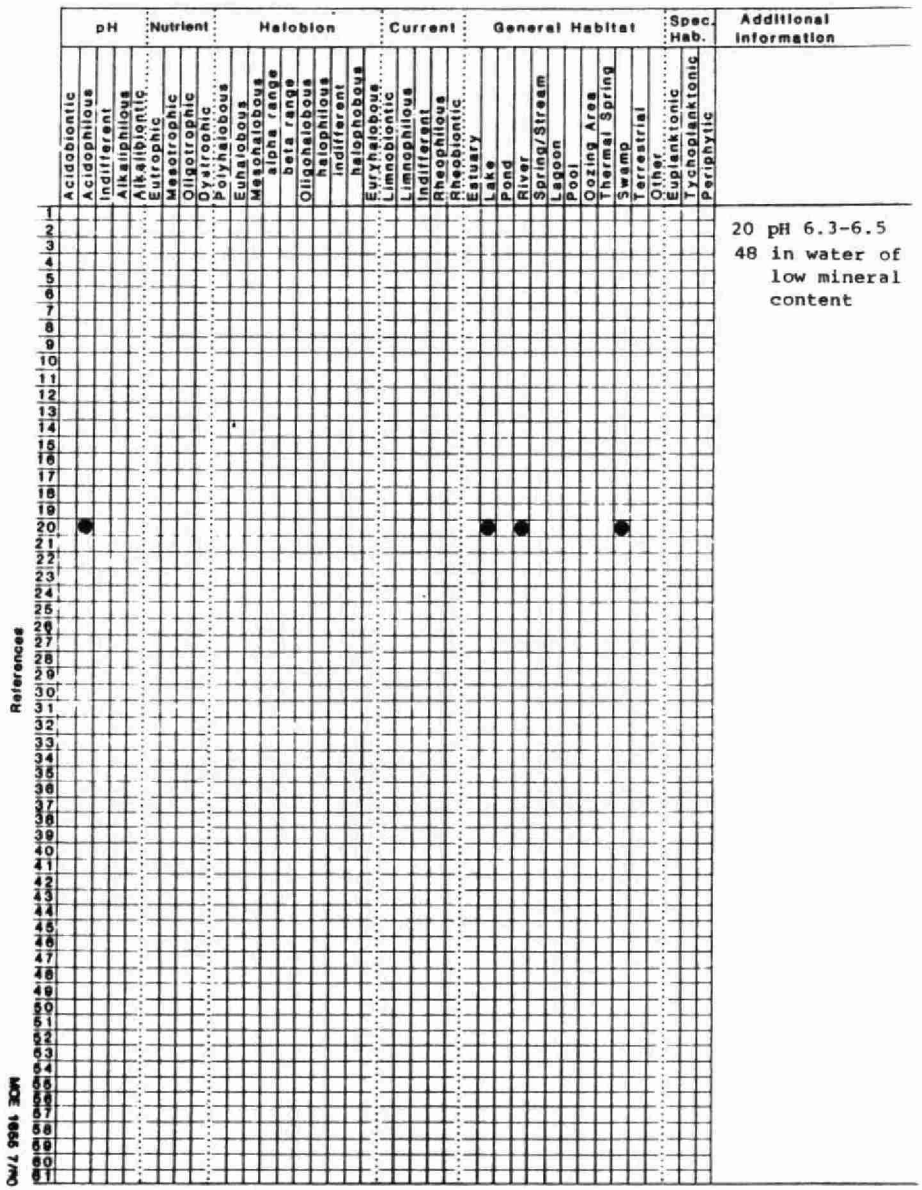
53 eurythermal oligothermal mesothermal

56 spring maximum

Ministry of the Environment
Ontario

Taxon Frustulia weinholdii Hust.

Synonym



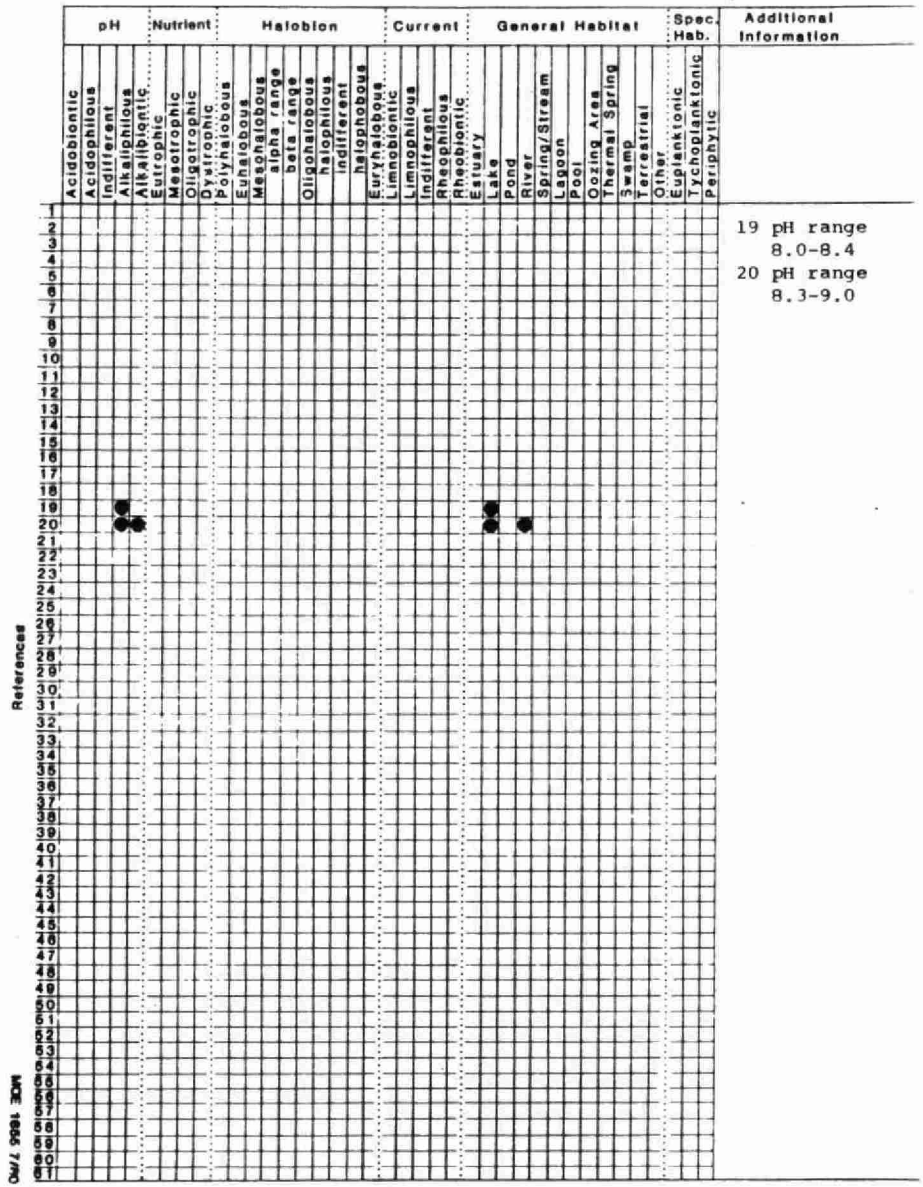
Additional information

20 pH 6.3-6.5
48 in water of low mineral content

Ministry of the Environment
Ontario

Taxon Gomphocymbella ancyli (Cl.) Hust.

Synonym



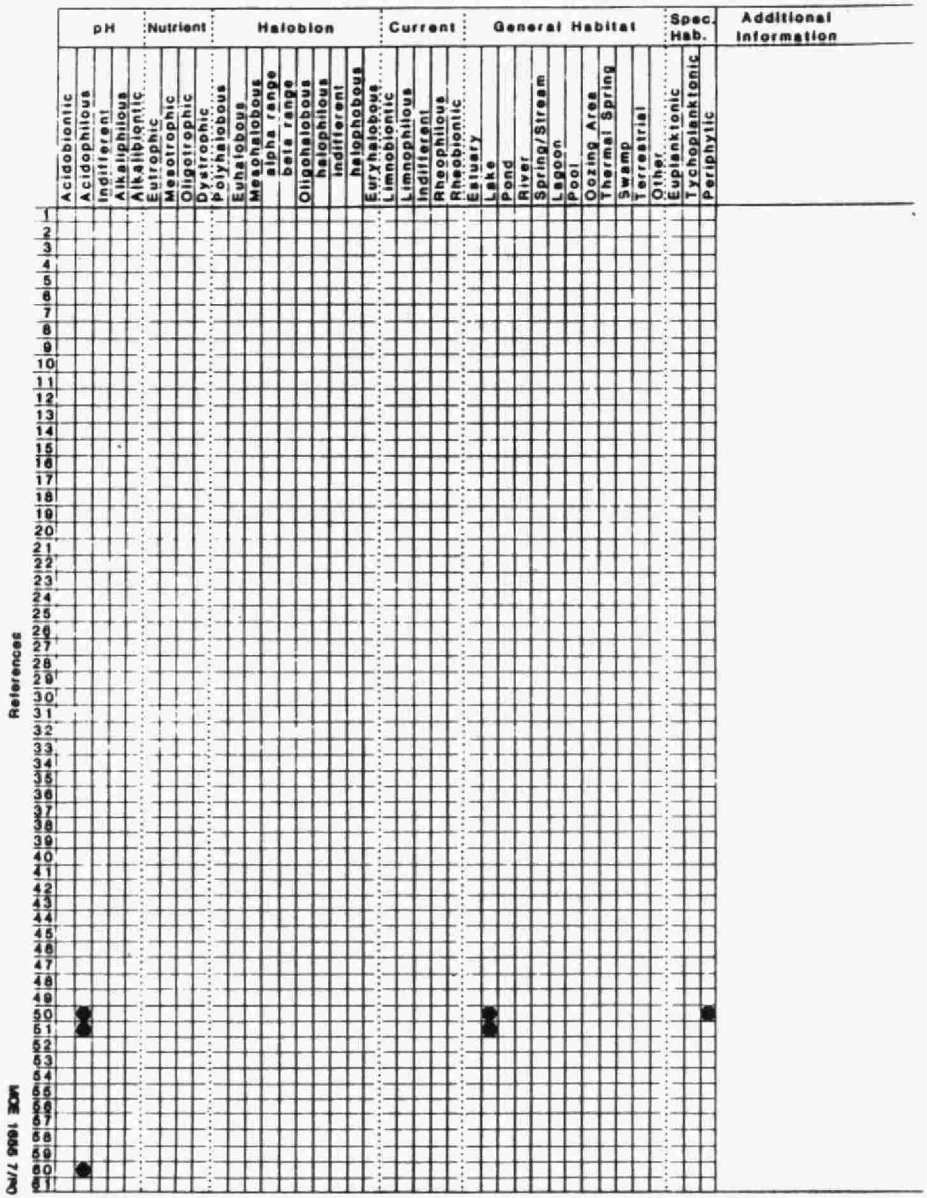
Additional information

19 pH range 8.0-8.4
20 pH range 8.3-9.0

Ministry of the Environment
Ontario

Taxon Gomphonema sp.

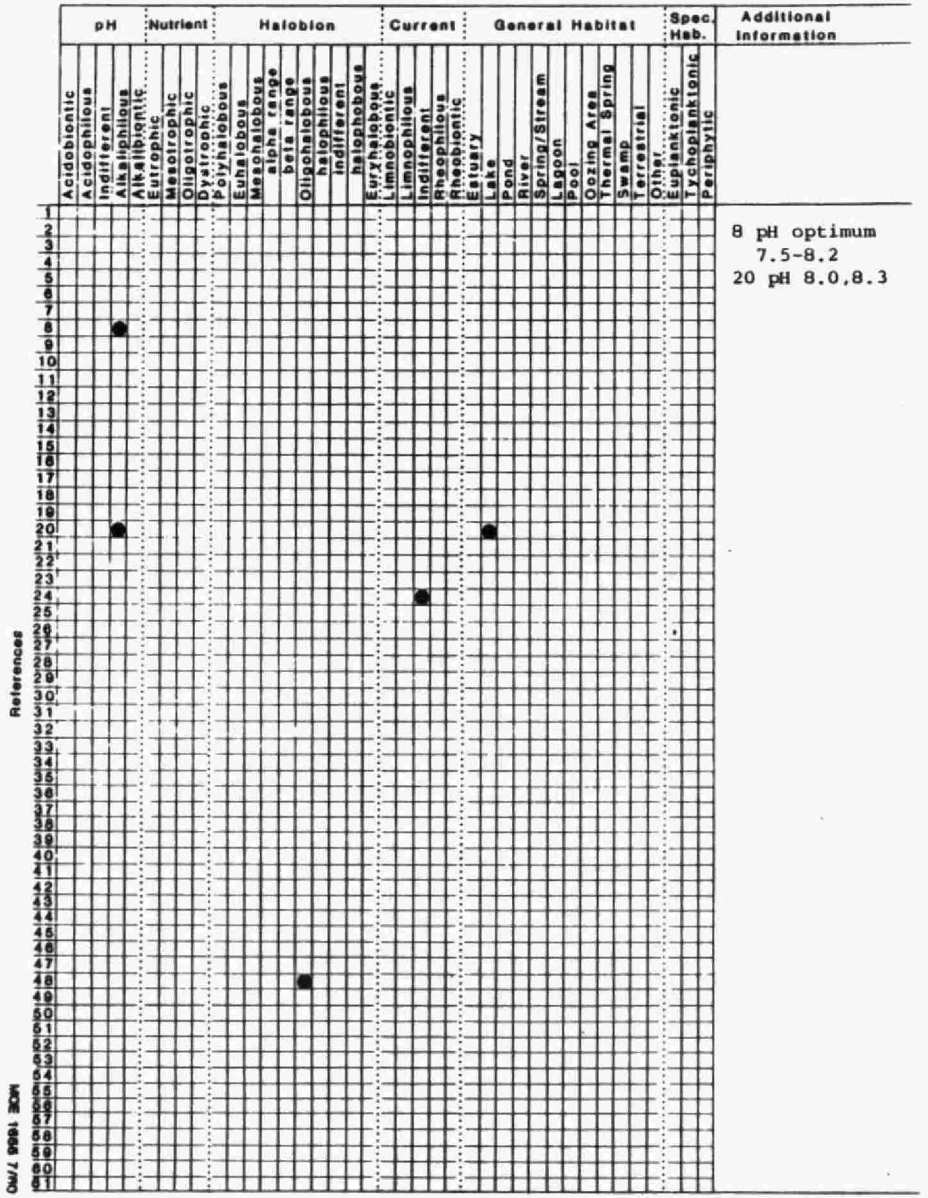
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema abbreviatum Ag.

Synonym Gomphonema rotundatum Ehr.



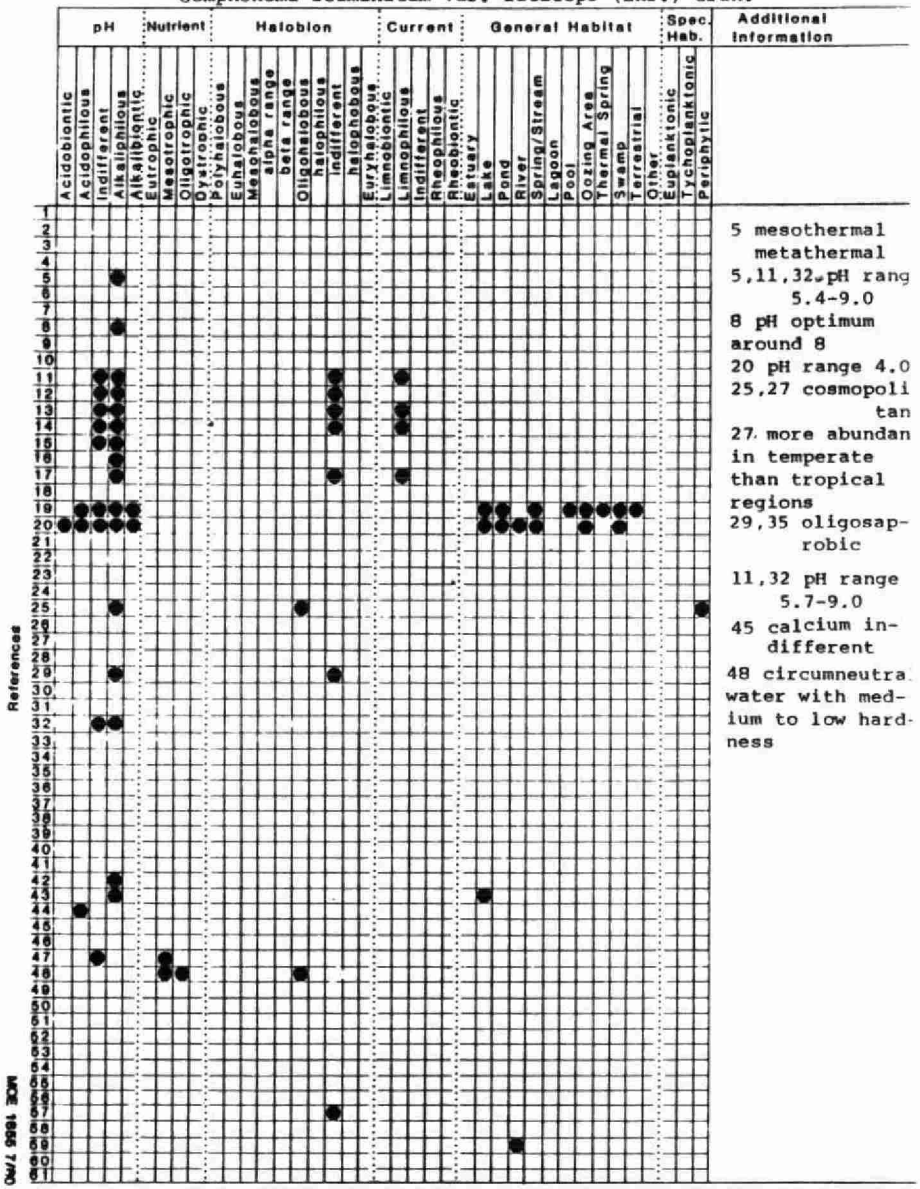
8 pH optimum
7.5-8.2
20 pH 8.0,8.3

Ministry of the Environment
Ontario

Taxon Gomphonema acuminatum Ehr. var. acuminatum

Synonym Gomphonema acuminatum var. coronatum (Ehr.) Rabh.

Gomphonema acuminatum var. laticeps (Ehr.) Grun.



5 mesothermal metathermal

5,11,32 pH rang 5.4-9.0

8 pH optimum around 8

20 pH range 4.0

25,27 cosmopoli tan

27 more abundan in temperate than tropical regions

29,35 oligosap- robic

11,32 pH range 5.7-9.0

45 calcium in- different

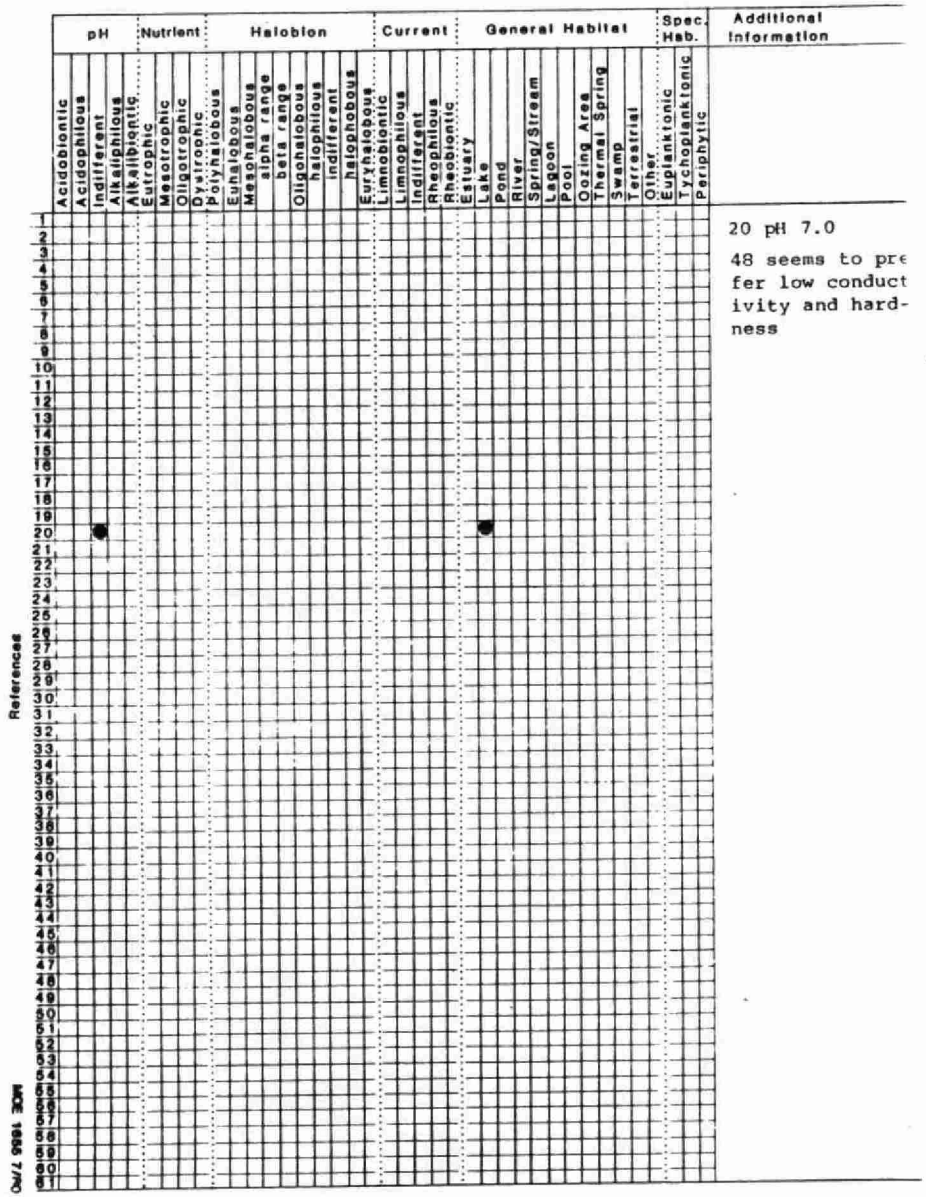
48 circumneutra water with med- ium to low hard- ness

MOE 1886 7/90

Ministry of the Environment
Ontario

Taxon Gomphonema acuminatum var. elongatum(W. Sm.) Carr.

Synonym



20 pH 7.0

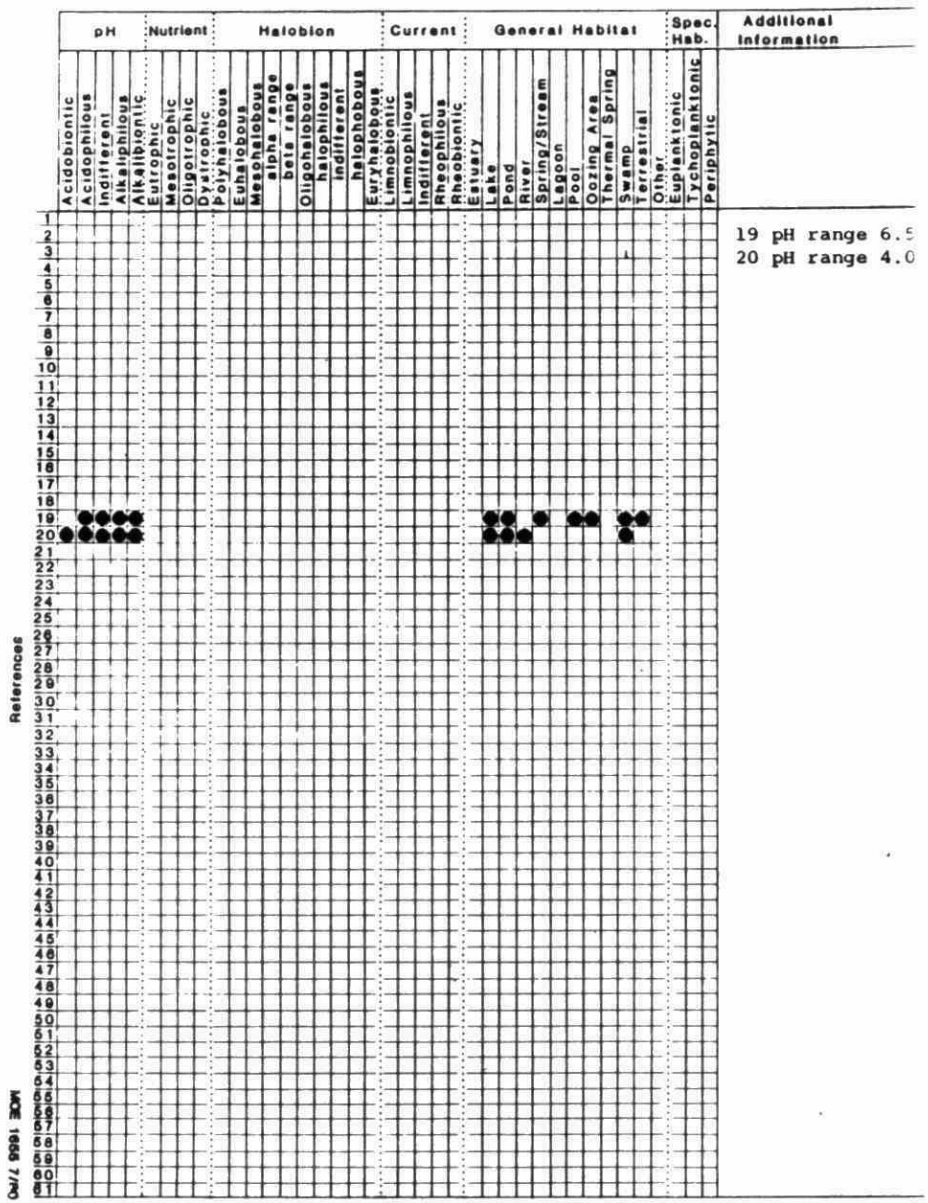
48 seems to pre fer low conduct ivity and hard- ness

MOE 1886 7/90

Ministry of the Environment
Ontario

Taxon Gomphonema acuminatum var. trigonocephala (Ehr.) Grun.

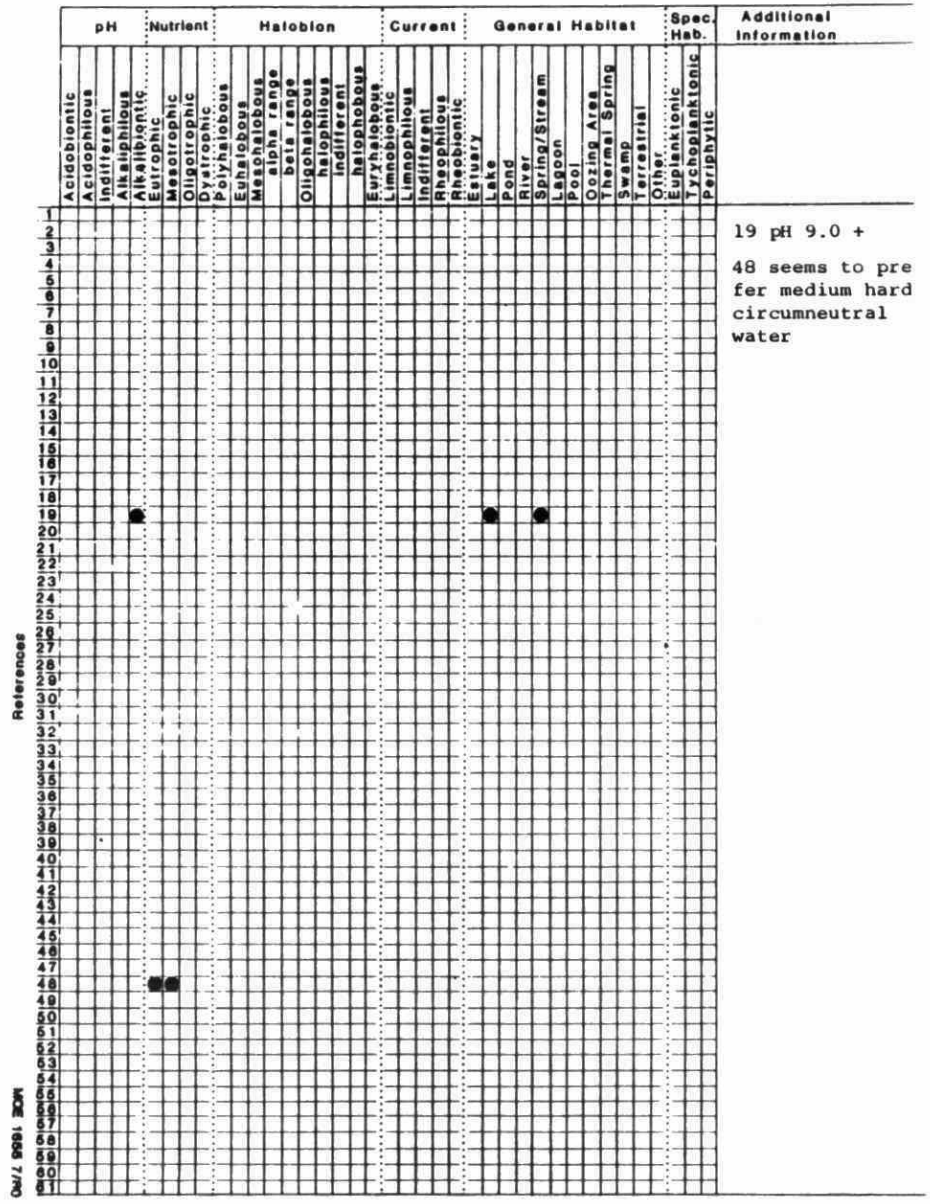
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema affine var. insigne (Greg.) Andrews

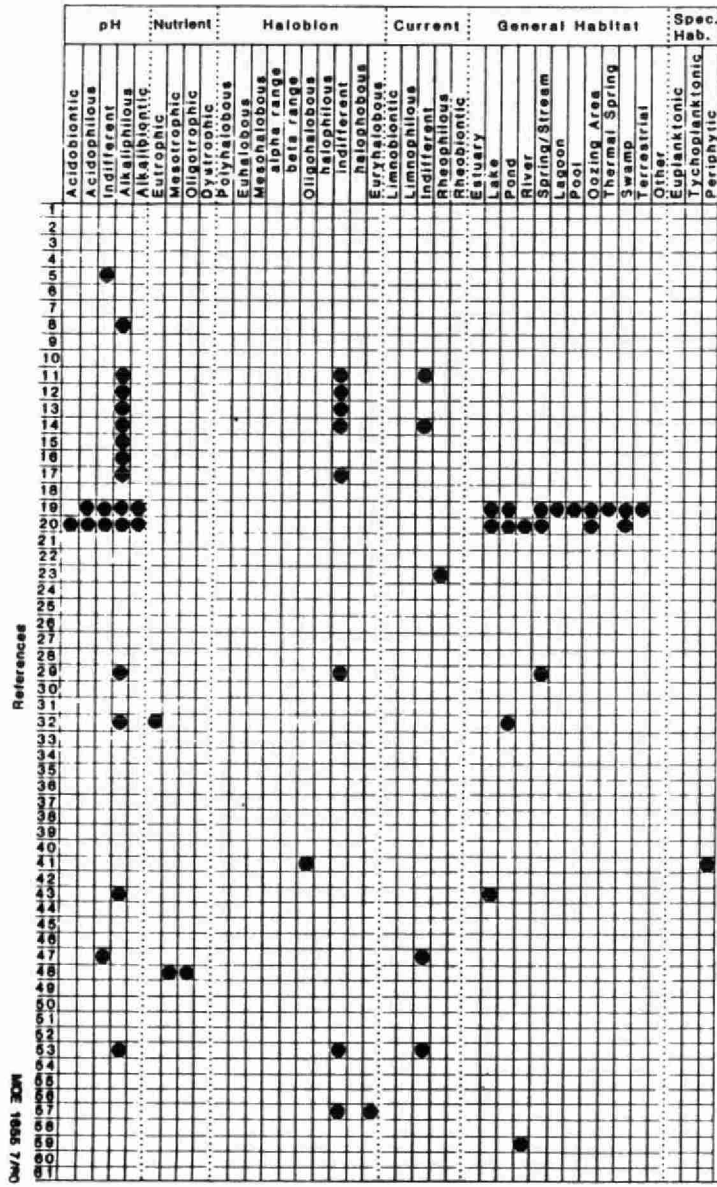
Synonym Gomphonema lanceolatum var. insignis (Greg.) Cl.



Ministry of the Environment
Ontario

Taxon Gomphonema angustatum (Kutz.) Rabh. var. angustatum

Synonym



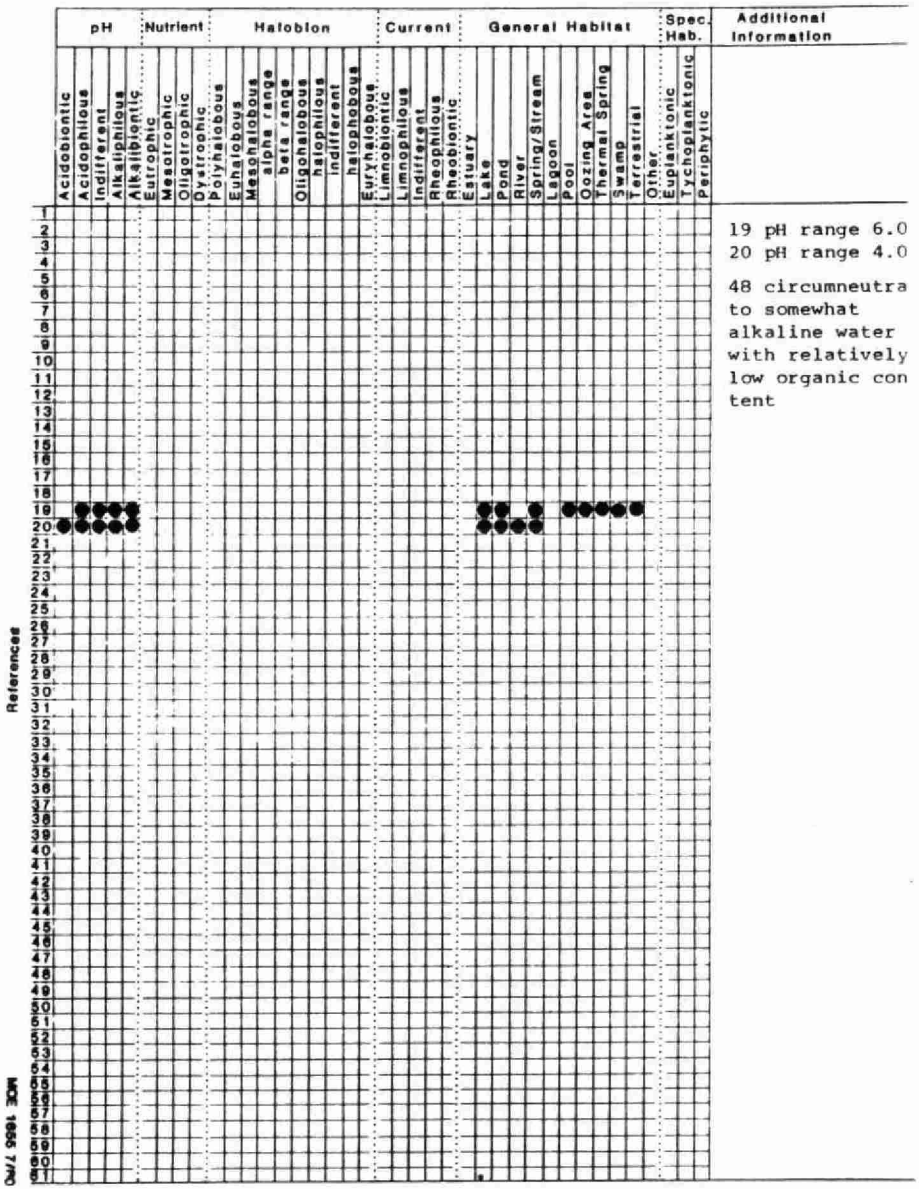
5,11,32,53 pH range 6-9.0
5,53 eurytherma
metatherma
oligotherma
mesotherma
8 pH optimum 7.5-7.7
7 oligosaprobic
19 pH 5.5 +
20 pH less than 4.0-9.0 +
56 fall & winte maxima

48 typically in circumneutral t slightly alkali fresh water

Ministry of the Environment
Ontario

Taxon Gomphonema angustatum var. productum Grun.

Synonym

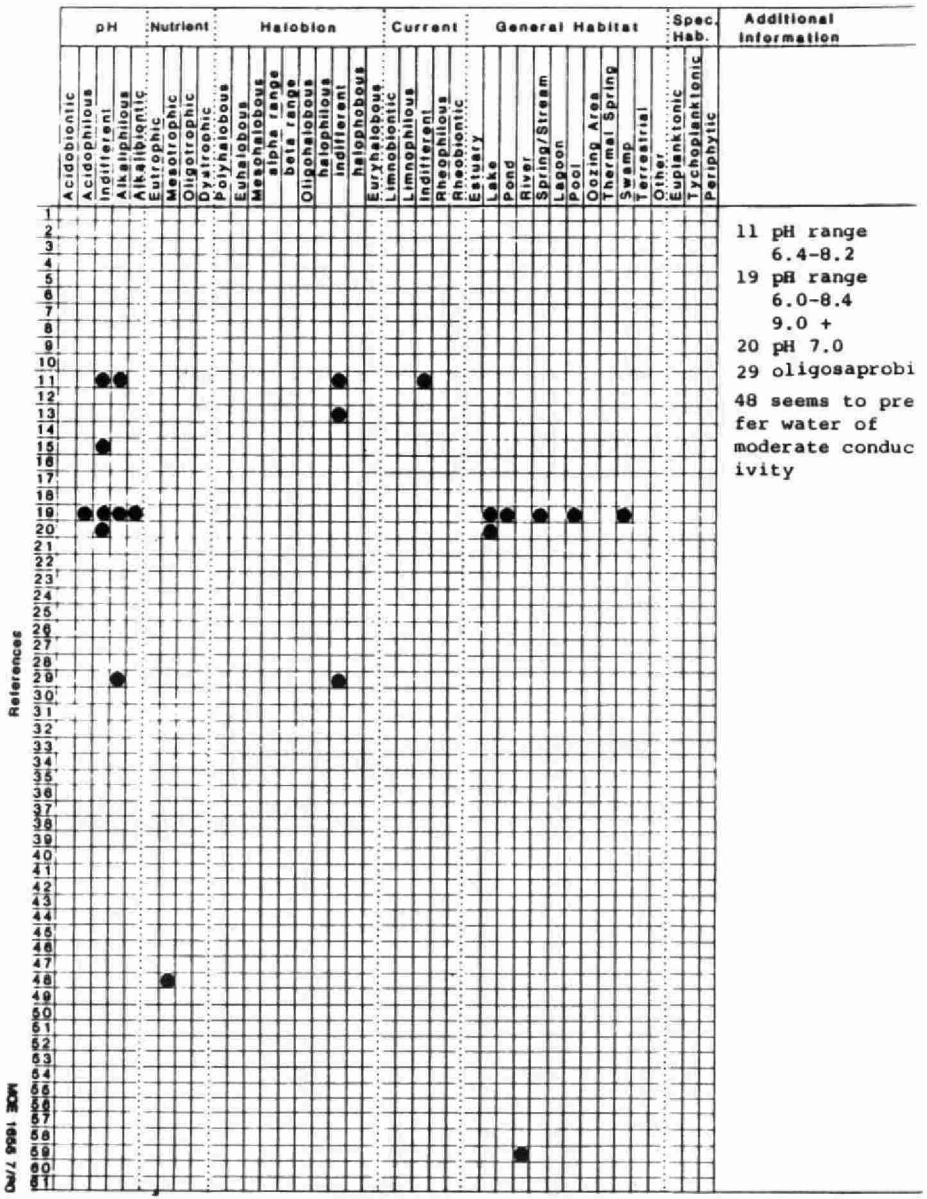


19 pH range 6.0
20 pH range 4.0

48 circumneutra to somewhat alkaline water with relatively low organic con tent

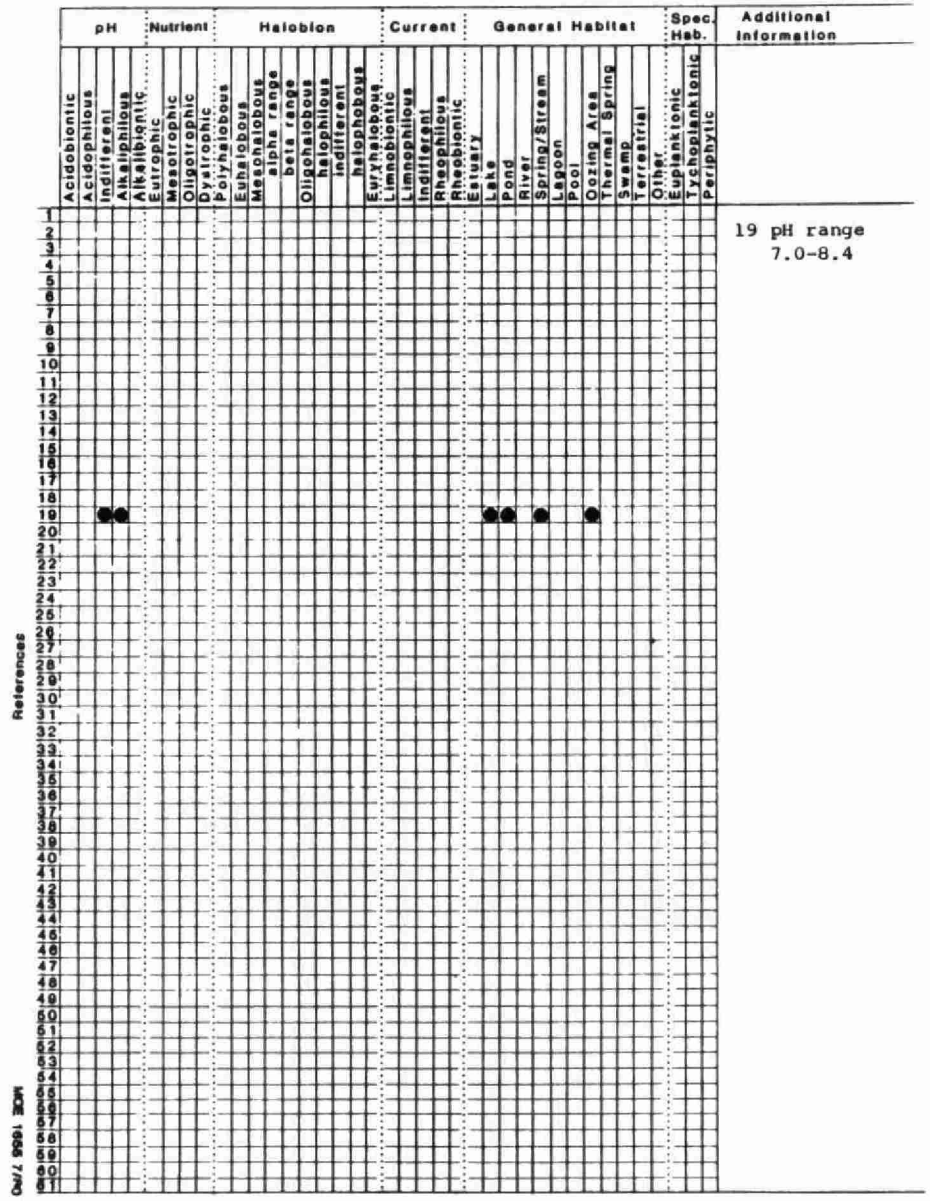
Taxon Gomphonema angustatum var. sarcophagus (Greg.) Grun.

Synonym



Taxon Gomphonema angustatum var. undulata(Greg.) Grun.

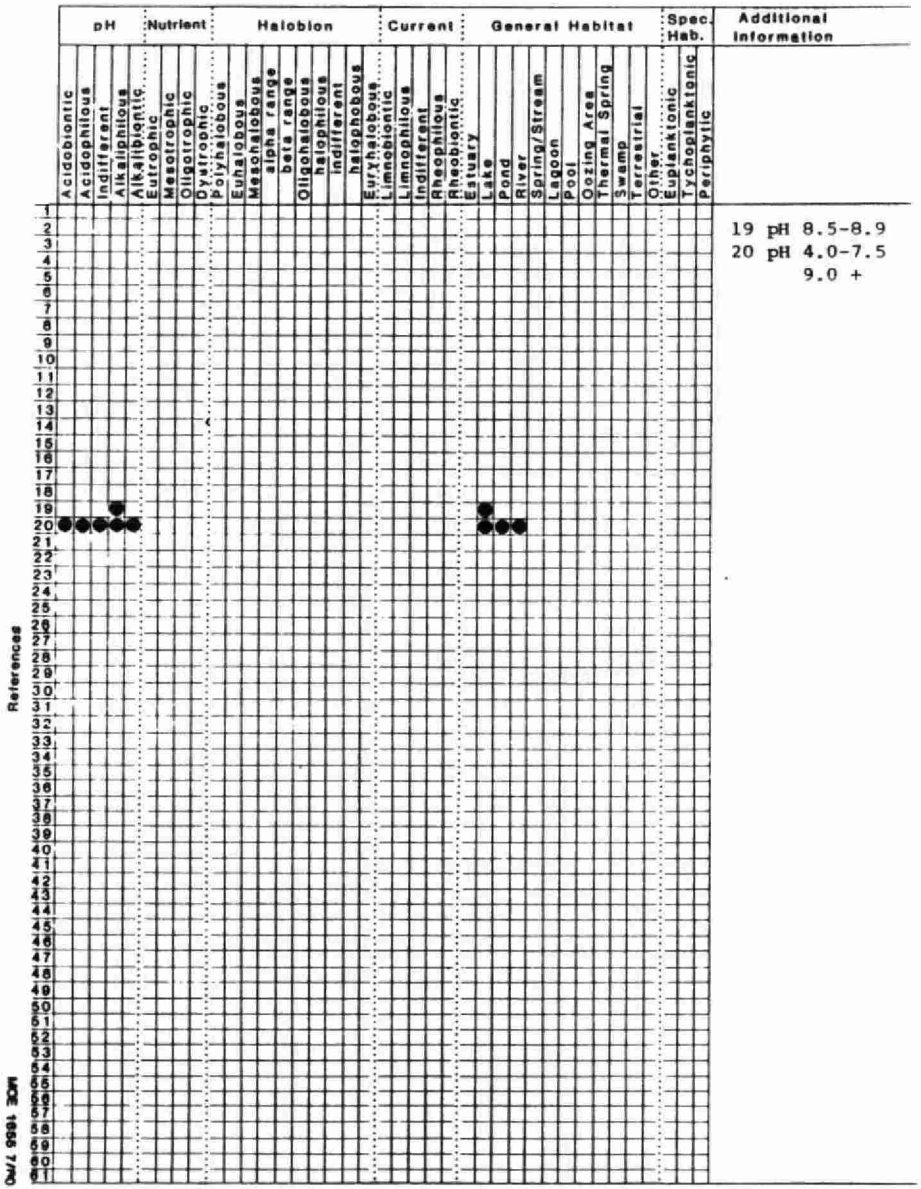
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema apicatum Ehr.

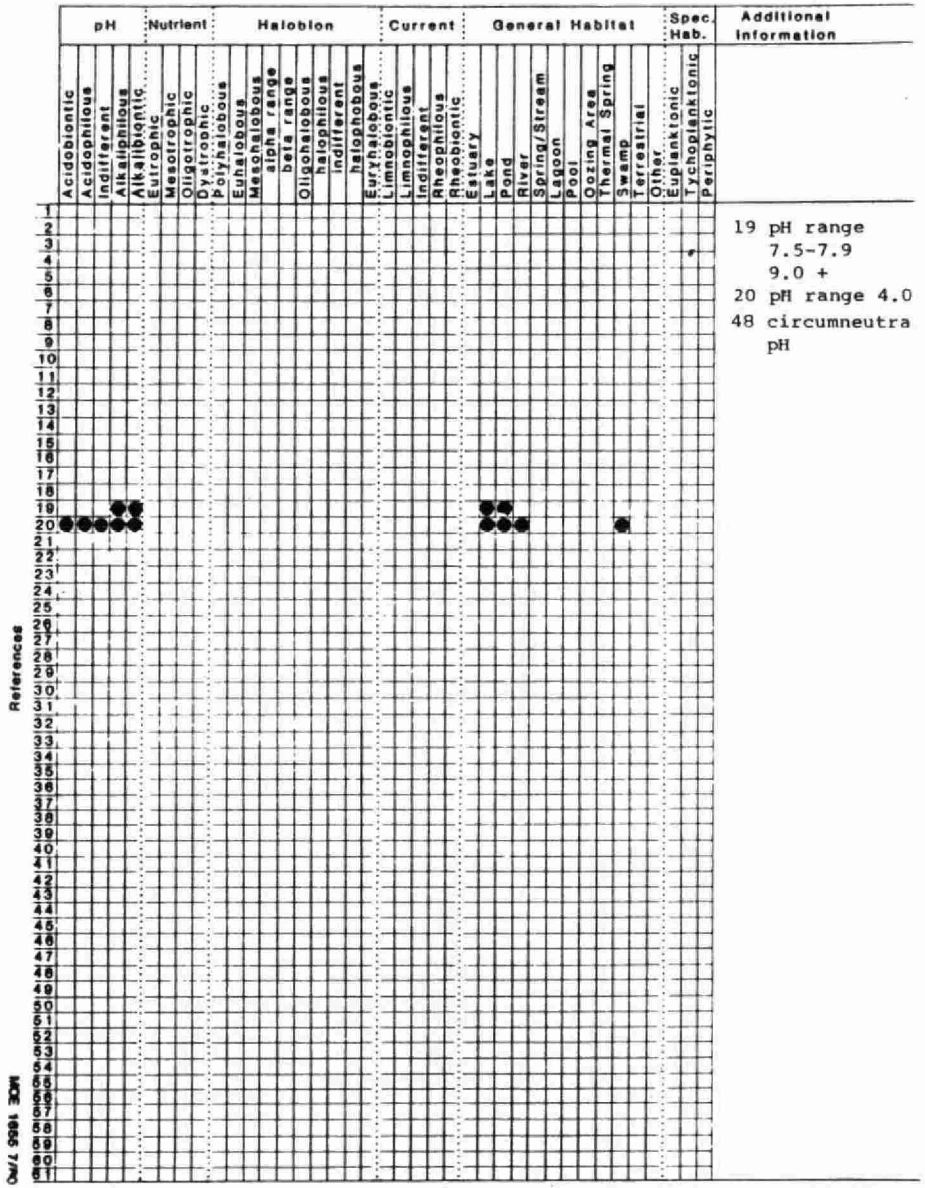
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema augur Ehr. var. augur

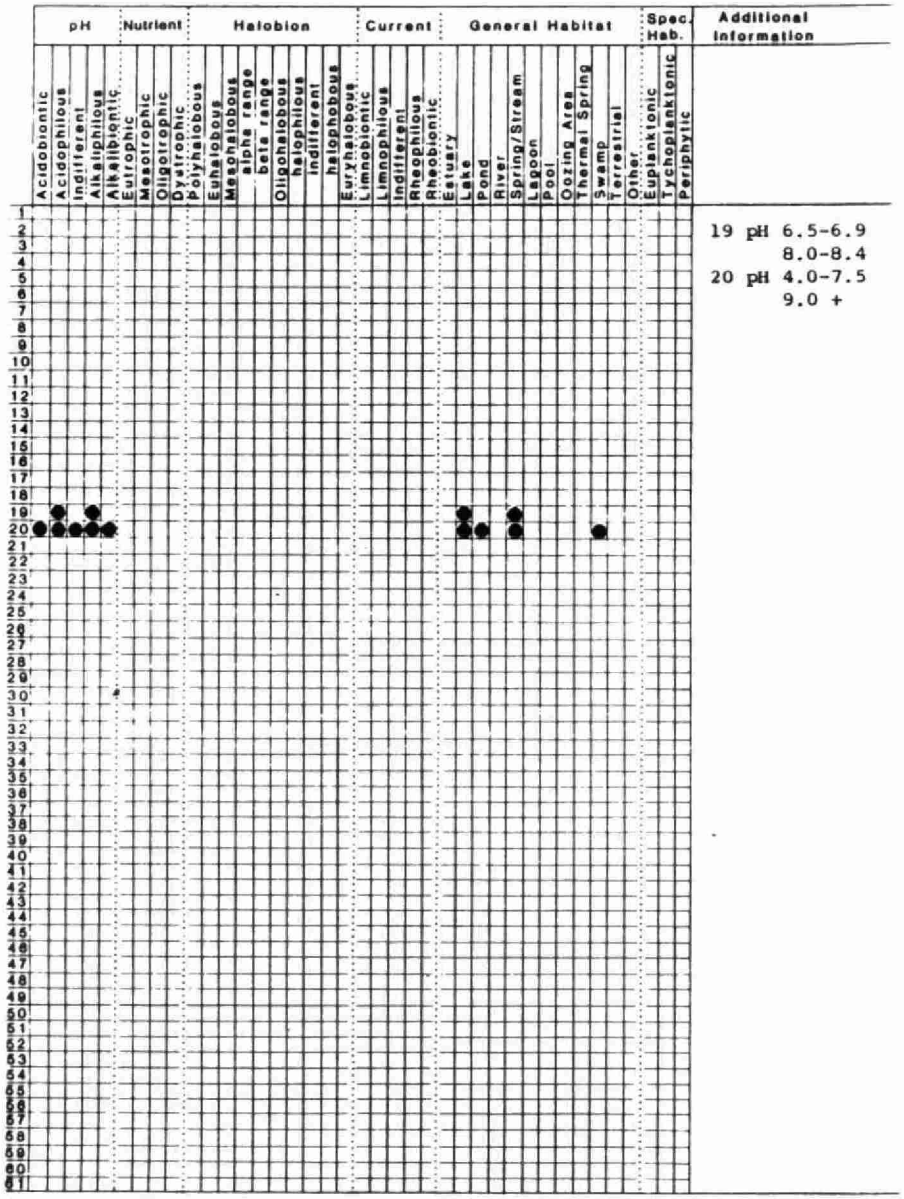
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema augur var. gautieri V. Heurck

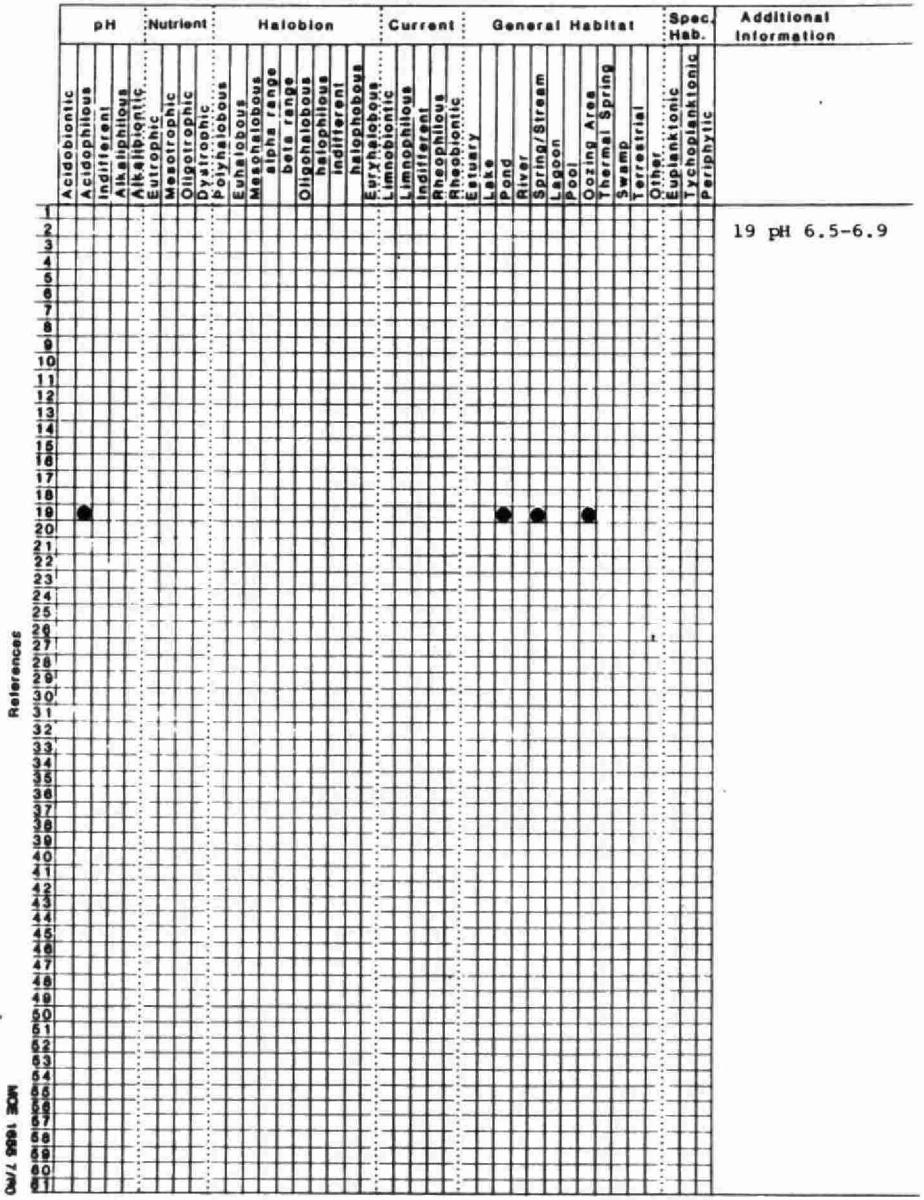
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema bipunctata Krasske

Synonym

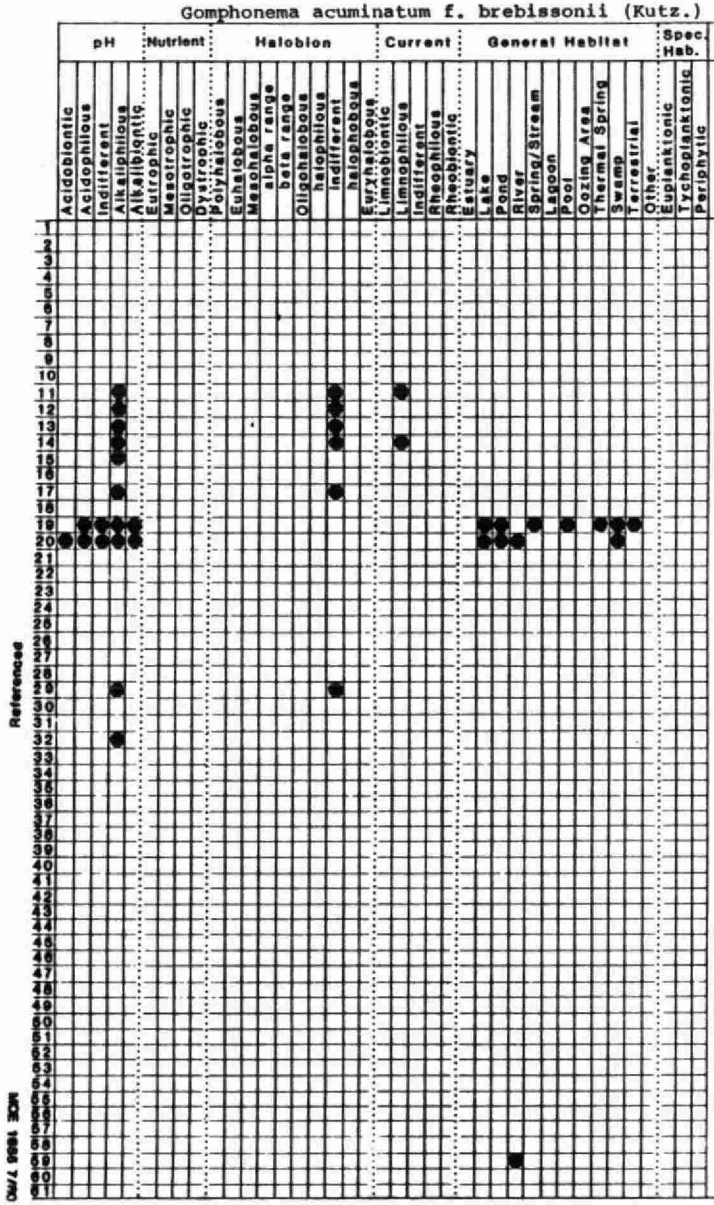


Ministry of the Environment
Ontario

Taxon Gomphonema brebissonii Kutz.

Synonym Gomphonema acuminatum var. brebissonii (Kutz.) Schonf.

Gomphonema acuminatum f. brebissonii (Kutz.) Cl.



Additional information

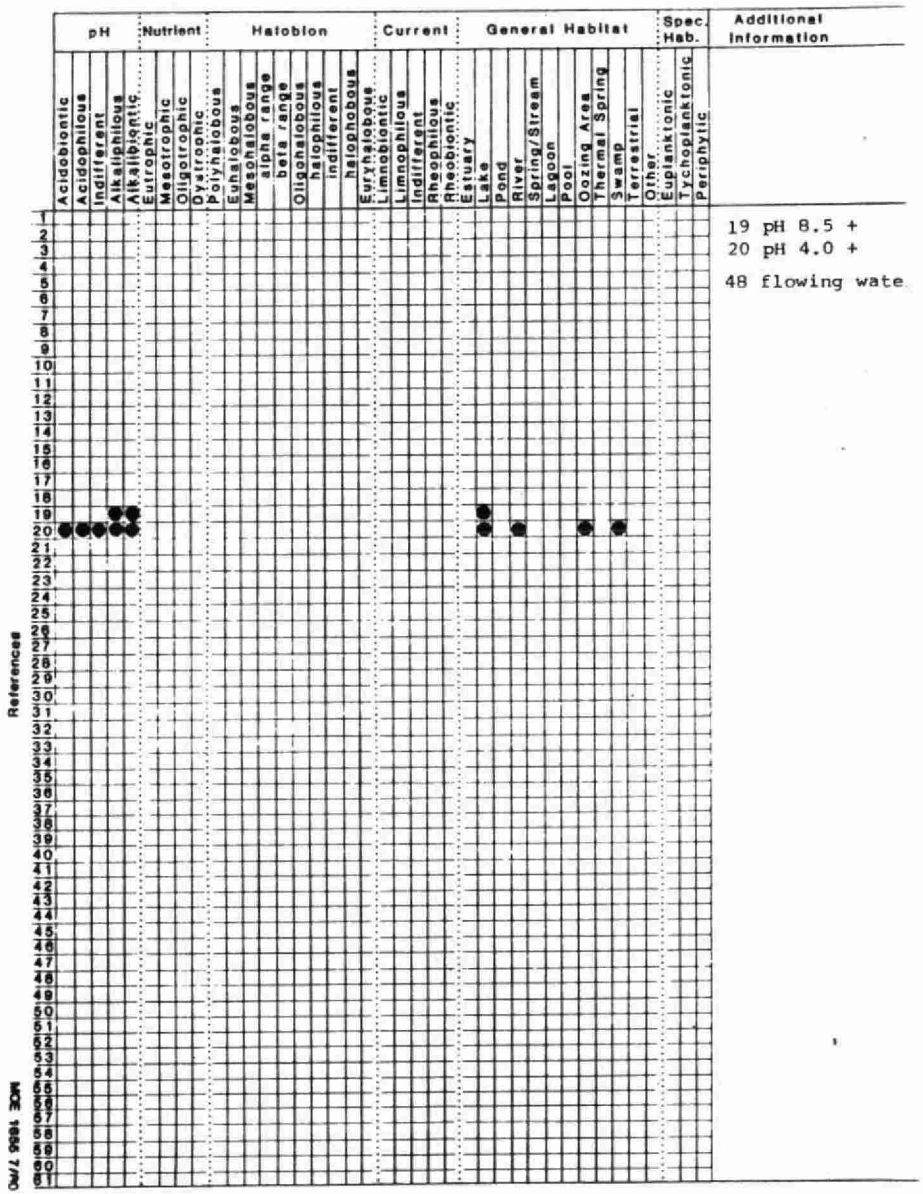
11,32 pH range 6.4-8.5
20 pH range 4.0+
29 oligosaprobic
48 seems to prefer circumneutral water

MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Gomphonema clevei Fricke

Synonym



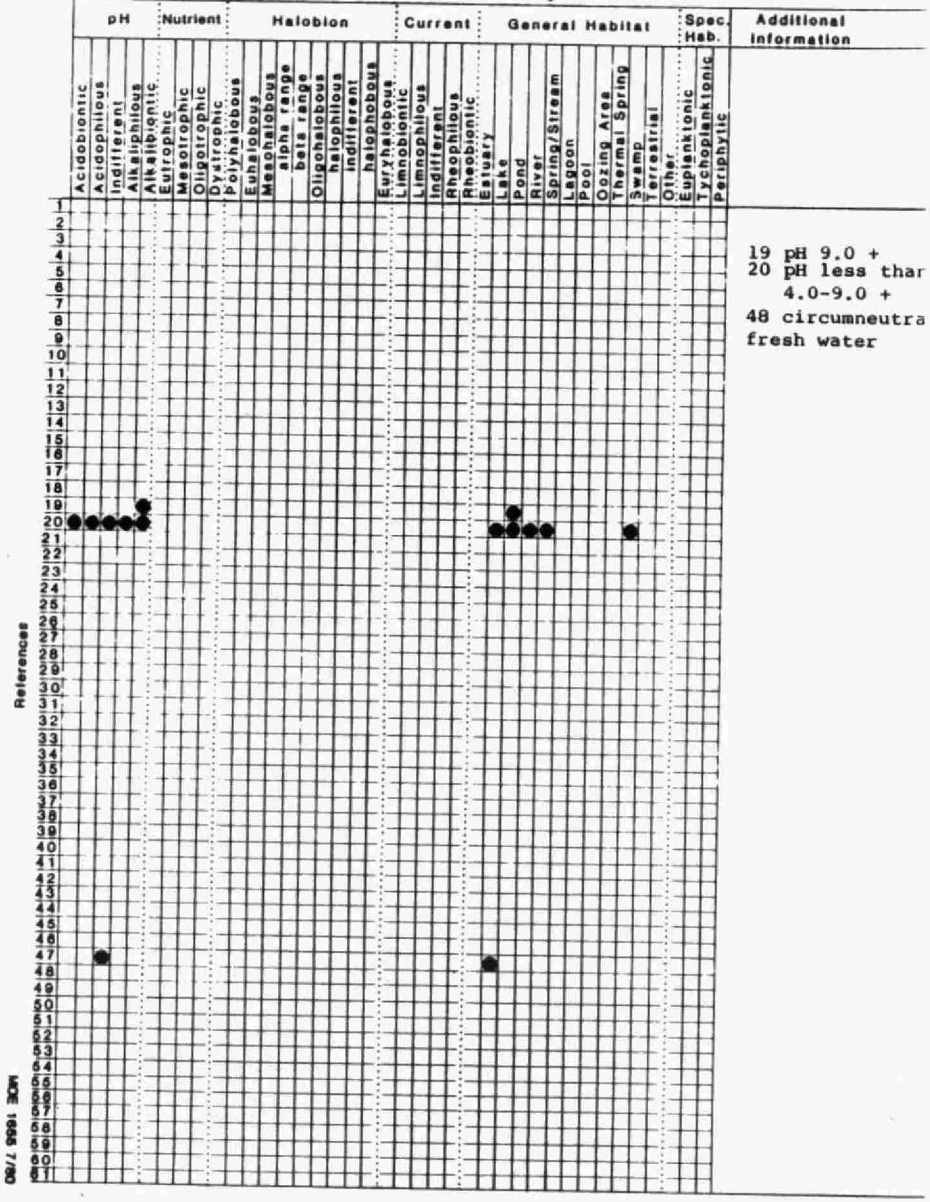
Additional information

19 pH 8.5 +
20 pH 4.0 +
48 flowing wate

MOE 1986 7/80

Taxon Gomphonema dichotomum Kutz.

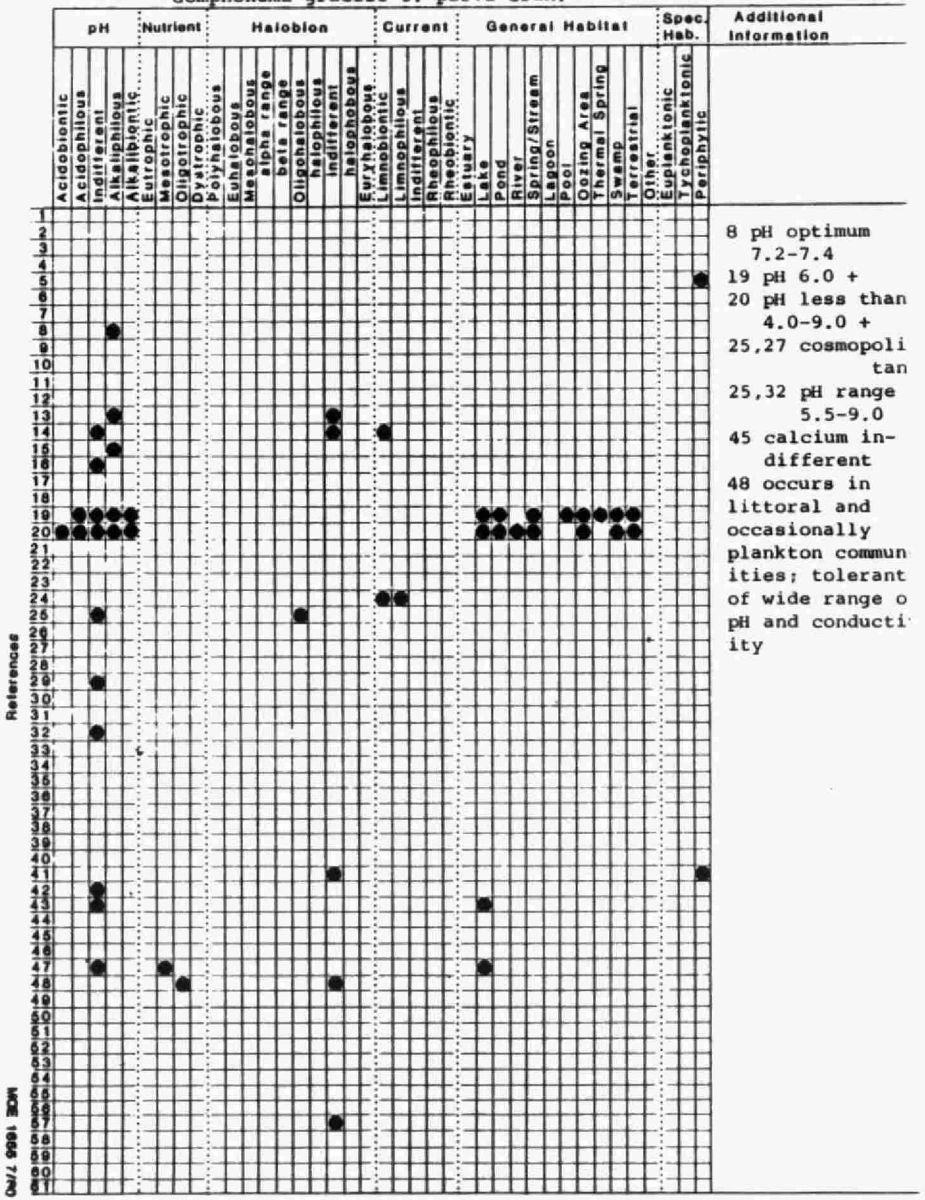
Synonym Gomphonema intricatum var. dichotoma (Kutz.) Grun.
Gomphonema intricatum var. pumila Grun.



19 pH 9.0 +
20 pH less than 4.0-9.0 +
48 circumneutral fresh water

Taxon Gomphonema gracile Ehr. emend. V. H. var. gracile

Synonym Gomphonema gracile f. major V. H./ G. gracile var. naviculoid (W. Sm.) Grun
Gomphonema gracile f. parva Grun.

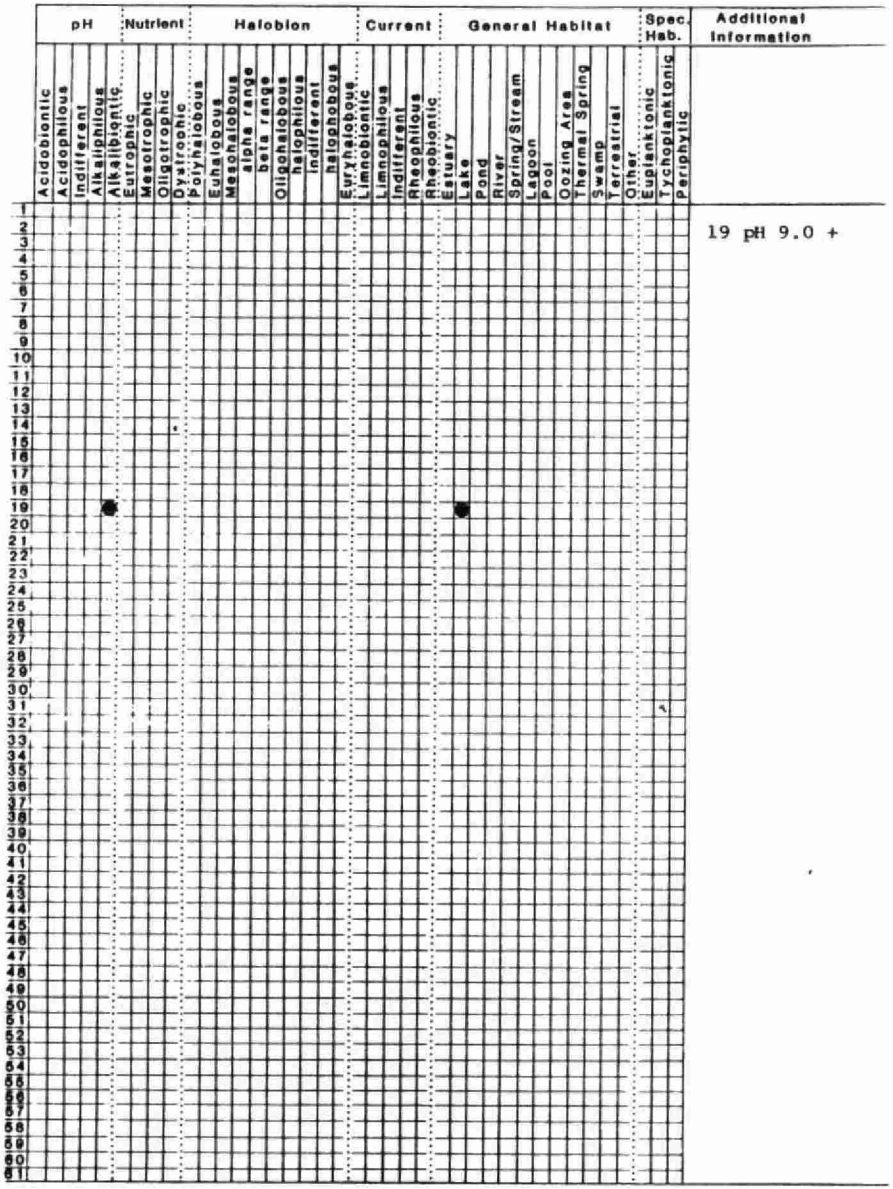


8 pH optimum 7.2-7.4
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
25,32 pH range 5.5-9.0
45 calcium indifferent
48 occurs in littoral and occasionally plankton communities; tolerant of wide range of pH and conductivity

Ministry of the Environment
Ontario

Taxon Gomphonema gracile f. turris Hust.

Synonym

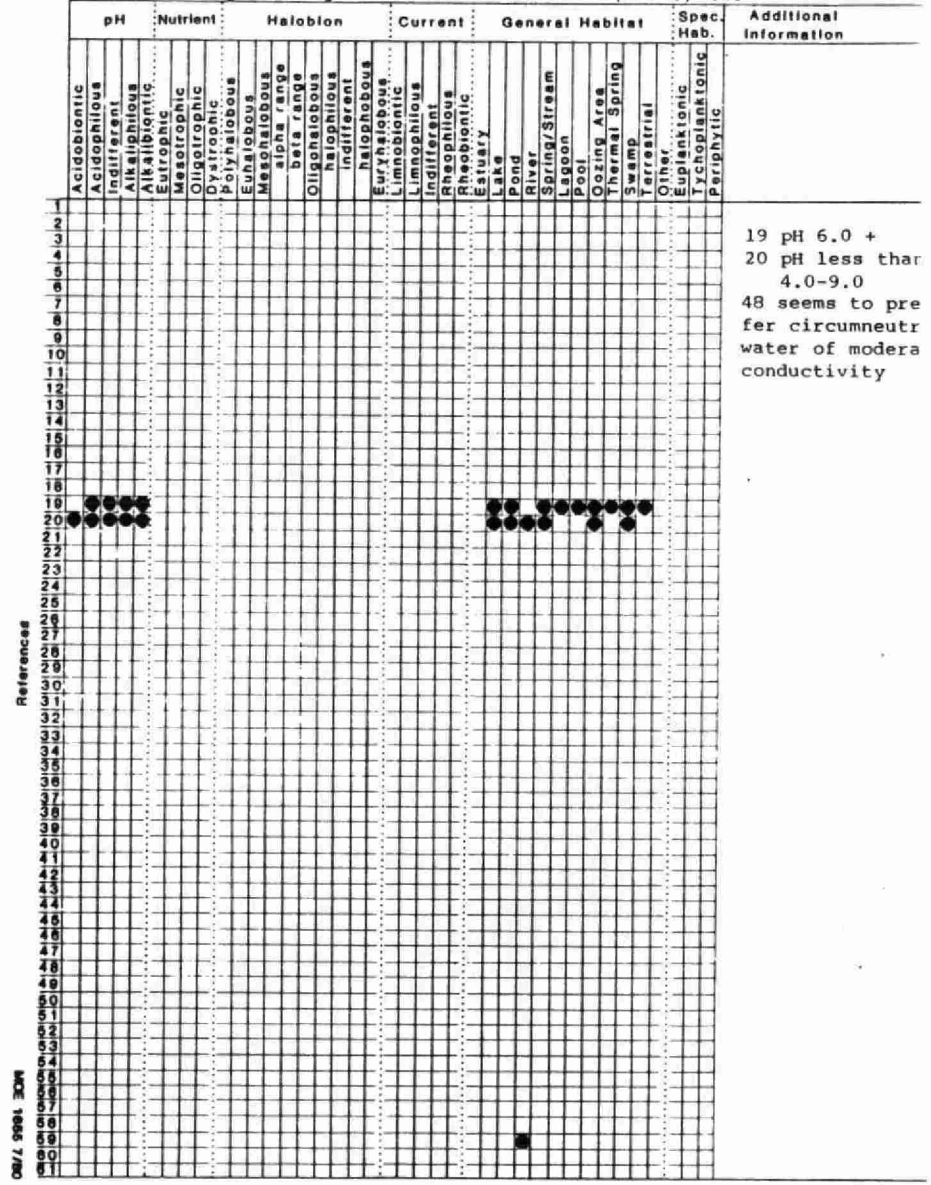


19 pH 9.0 +

Taxon Gomphonema grunowii Patr.

Synonym Gomphonema lanceolatum(Ehr.) Kutz.

Gomphonema gracile var. lanceolata (Kutz.) Cl.

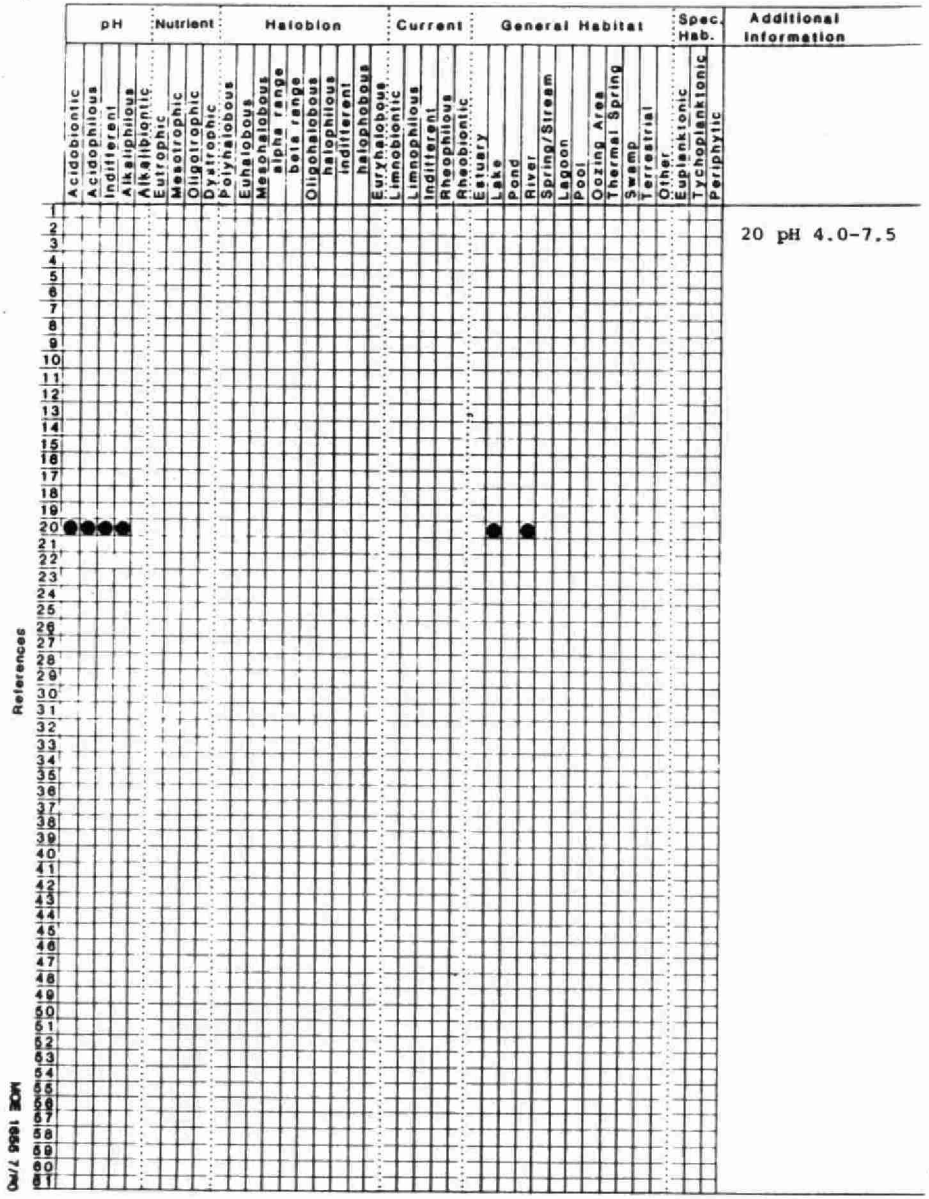


19 pH 6.0 +
20 pH less than 4.0-9.0
48 seems to prefer circumneutral water of moderate conductivity

Ministry of the Environment
Ontario

Taxon Gomphonema helveticum Brun. var. helveticum

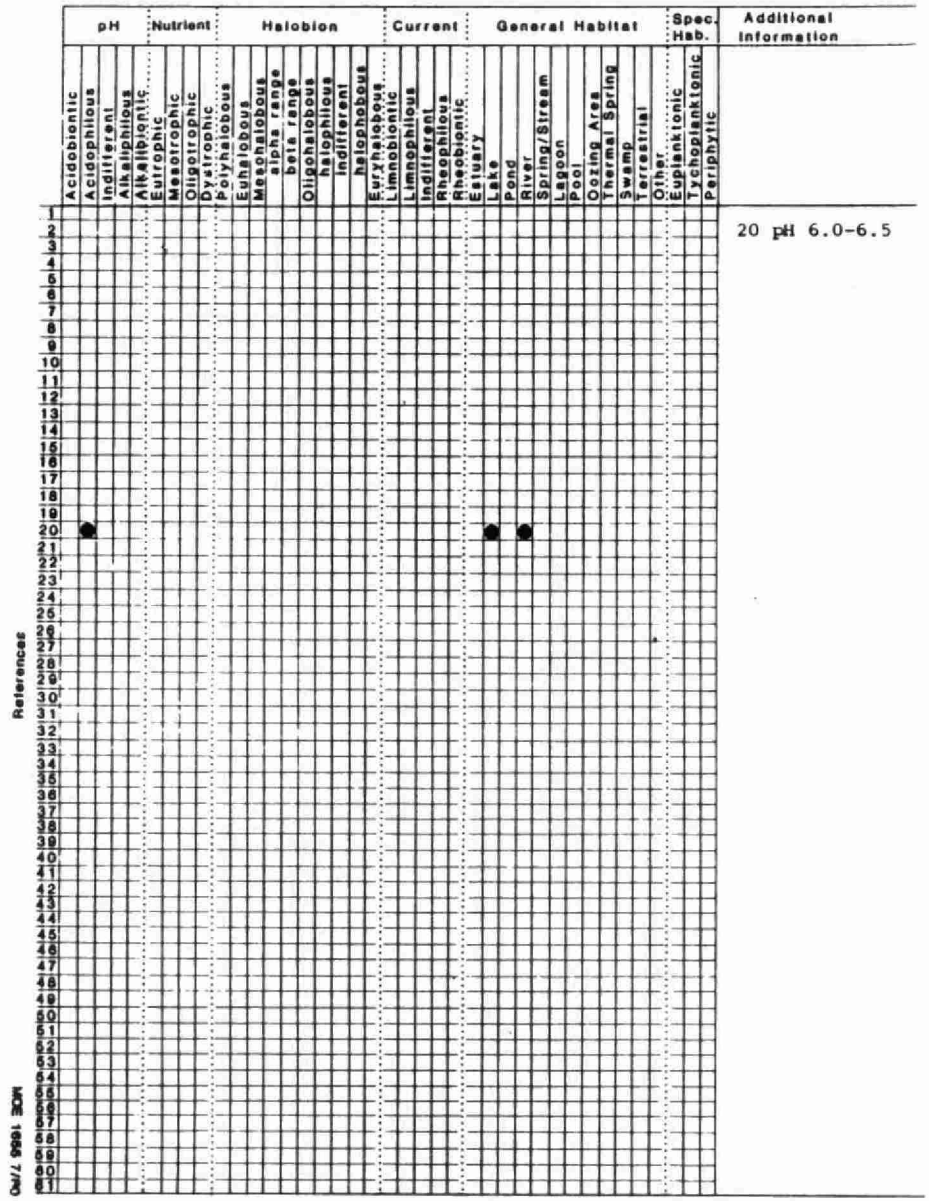
Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema helveticum var. undulatum A. Mayer

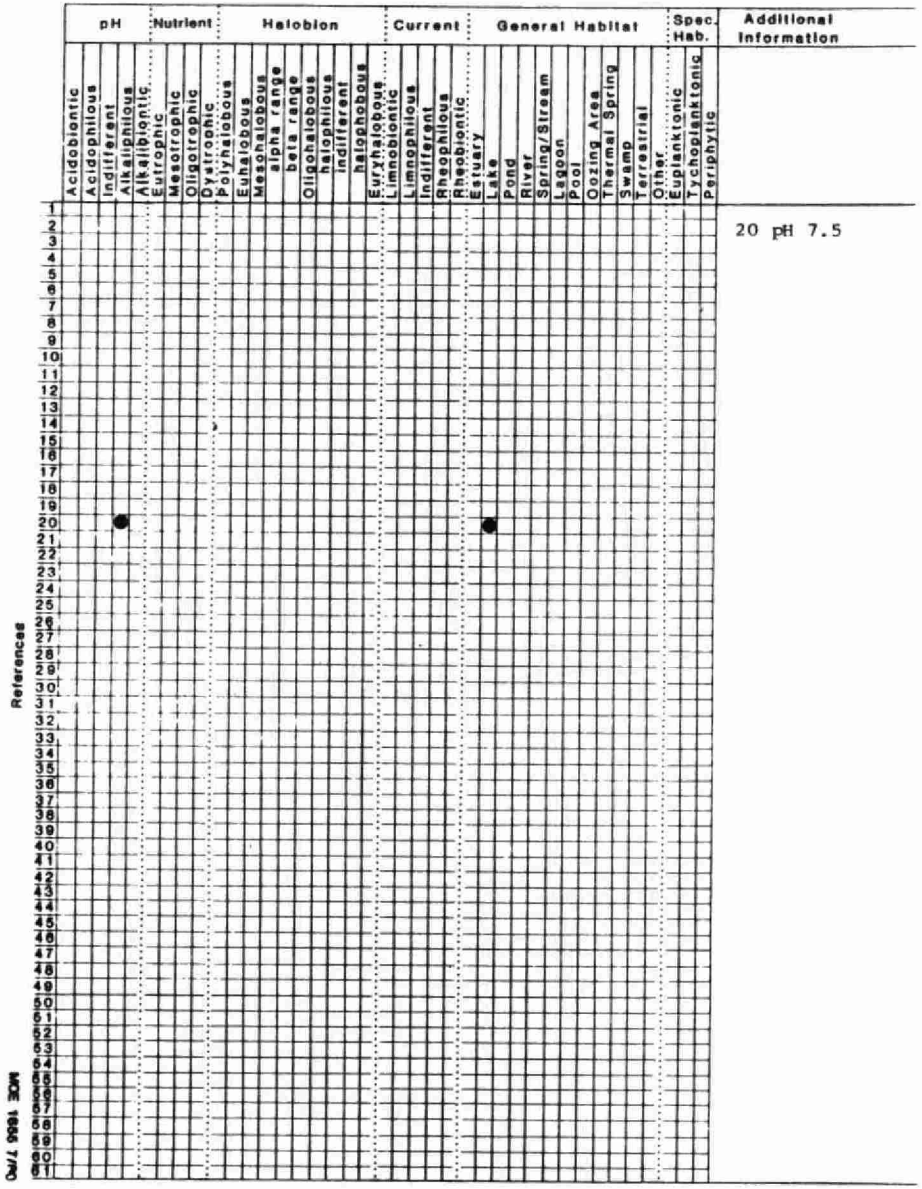
Synonym Gomphonema helveticum var. tenuis Fricke 20



Ministry of the Environment
Ontario

Taxon Gomphonema intricatum var. fossilis Pant.

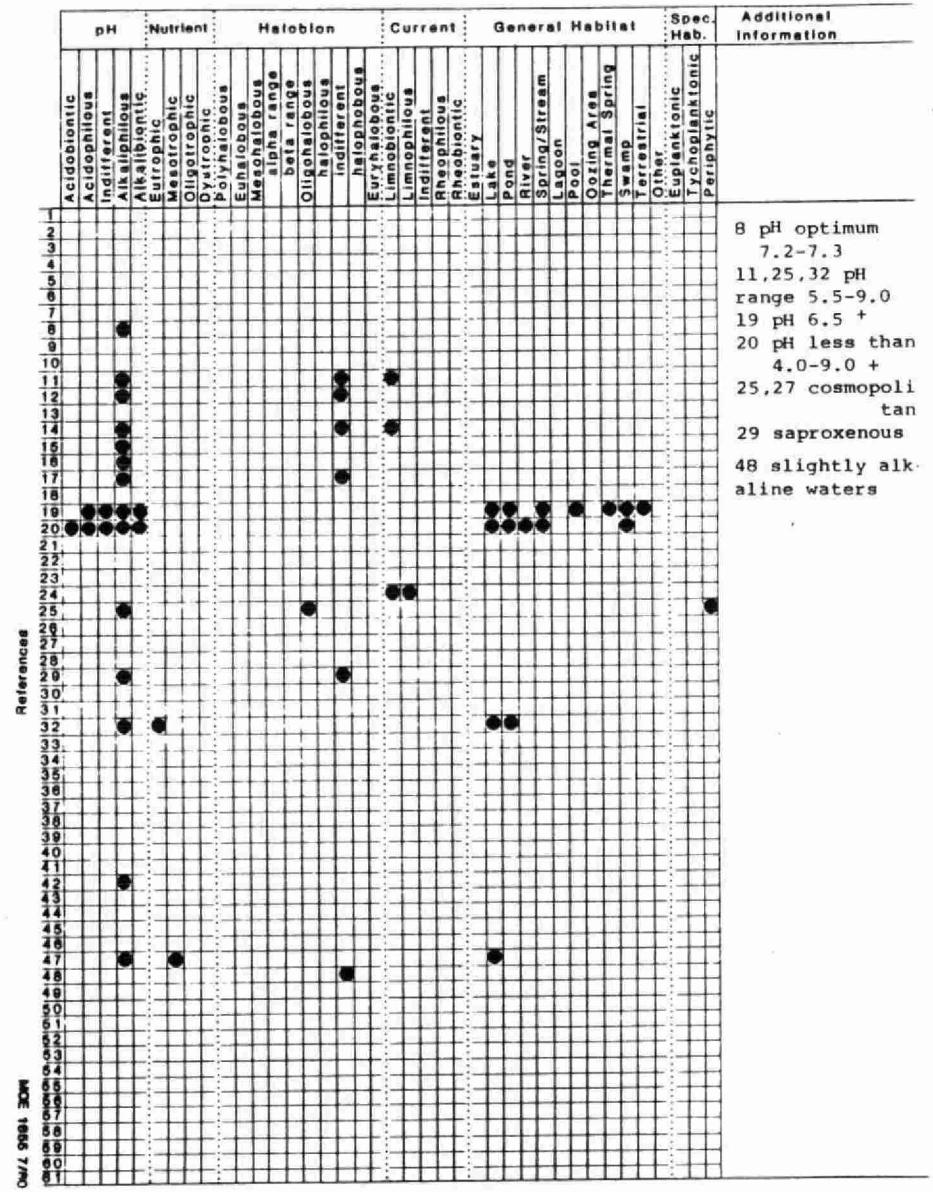
Synonym



Ministry of the Environment
Ontario

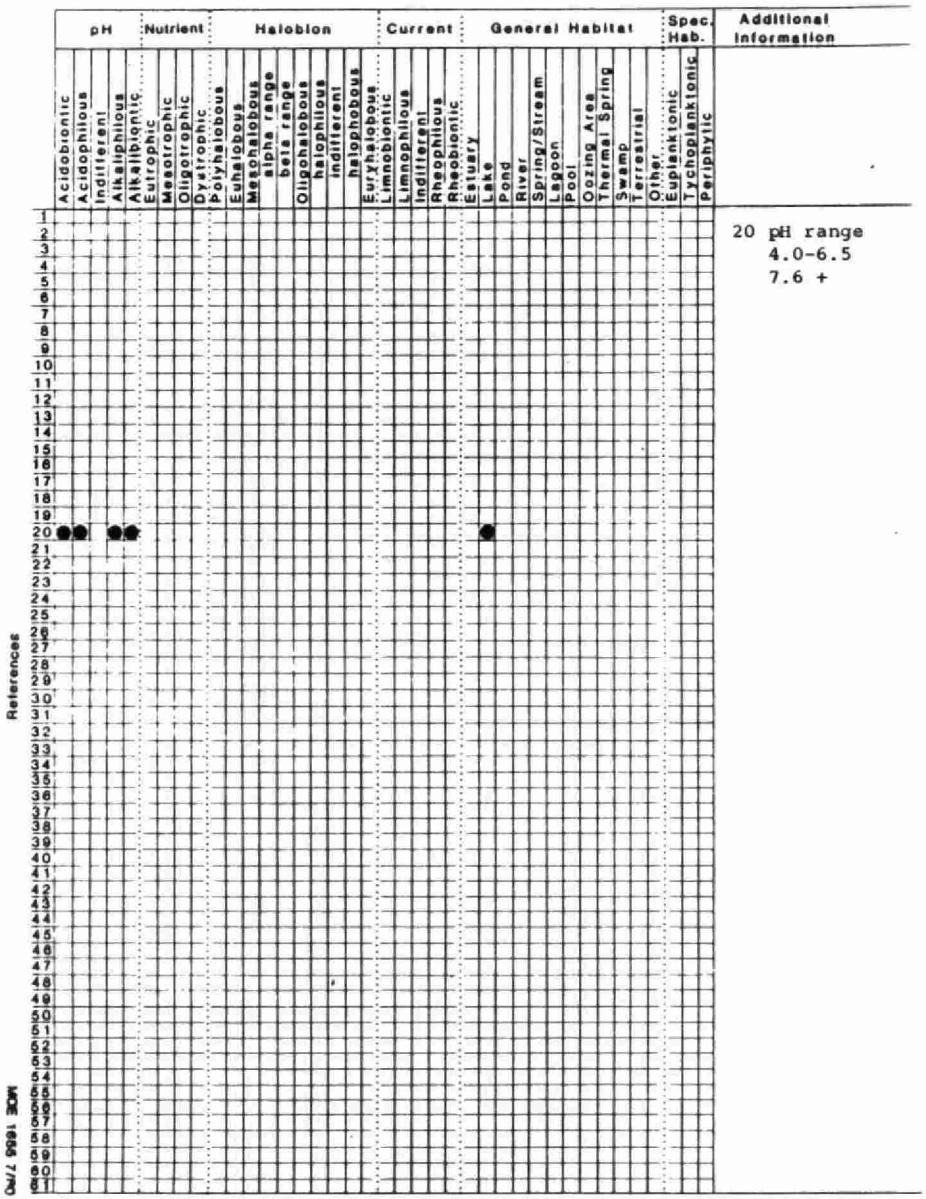
Taxon Gomphonema intricatum Kutz. var. intricatum

Synonym Gomphonema intricatum var. genuinum Mayer



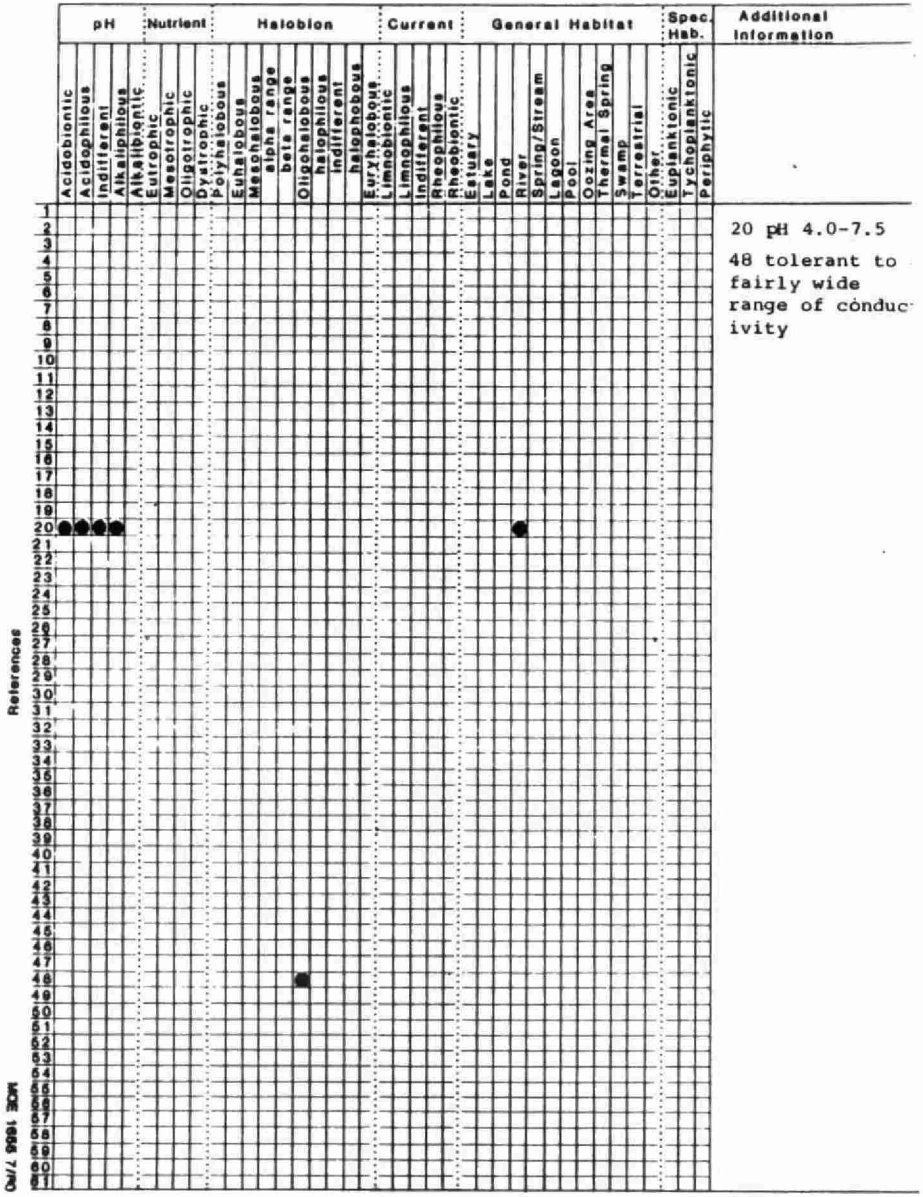
Taxon Gomphonema intricatum var. pusillum A. Mayer

Synonym



Taxon Gomphonema intricatum var. vibrio (Ehr.) Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Gomphonema lagerheimii Cl. var. lagerheimii

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20	●																								●														19 pH 6.0 + 20 pH 6.2, 6.3
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MOE 1986 7/MO

Ministry of the Environment
Ontario

Taxon Gomphonema lagerheimii f. simplex Foged

Synonym

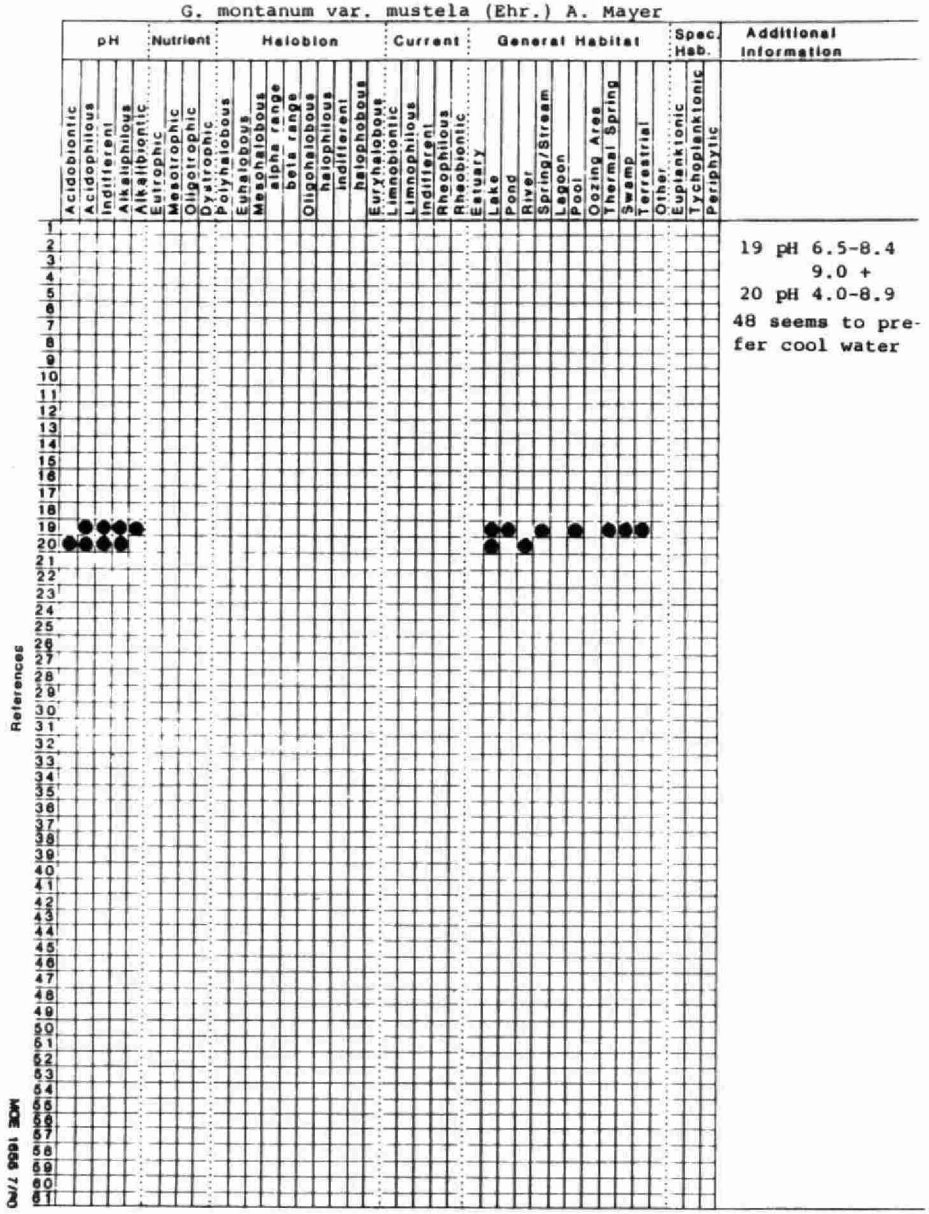
References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/MO

Ministry of the Environment
Ontario

Taxon Gomphonema longiceps Ehr.

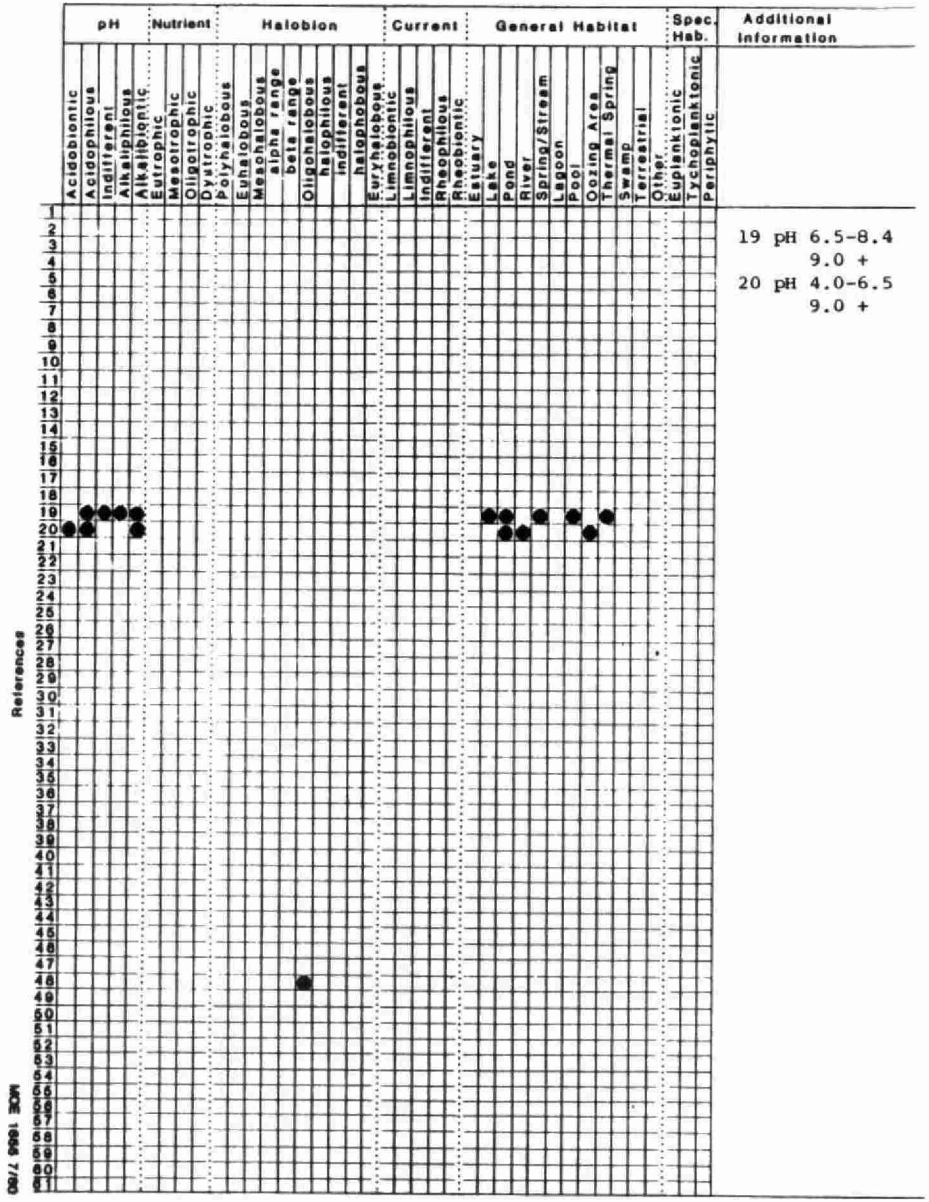
Synonym Gomphonema mustela Ehr./ G. subclavatum var. mustela (Ehr.) C
G. montanum var. mustela (Ehr.) A. Mayer



19 pH 6.5-8.4
9.0 +
20 pH 4.0-8.9
48 seems to prefer cool water

Taxon Gomphonema montanum Schum. var. montanum

Synonym Gomphonema longiceps var. montana (Schum.) Hust.

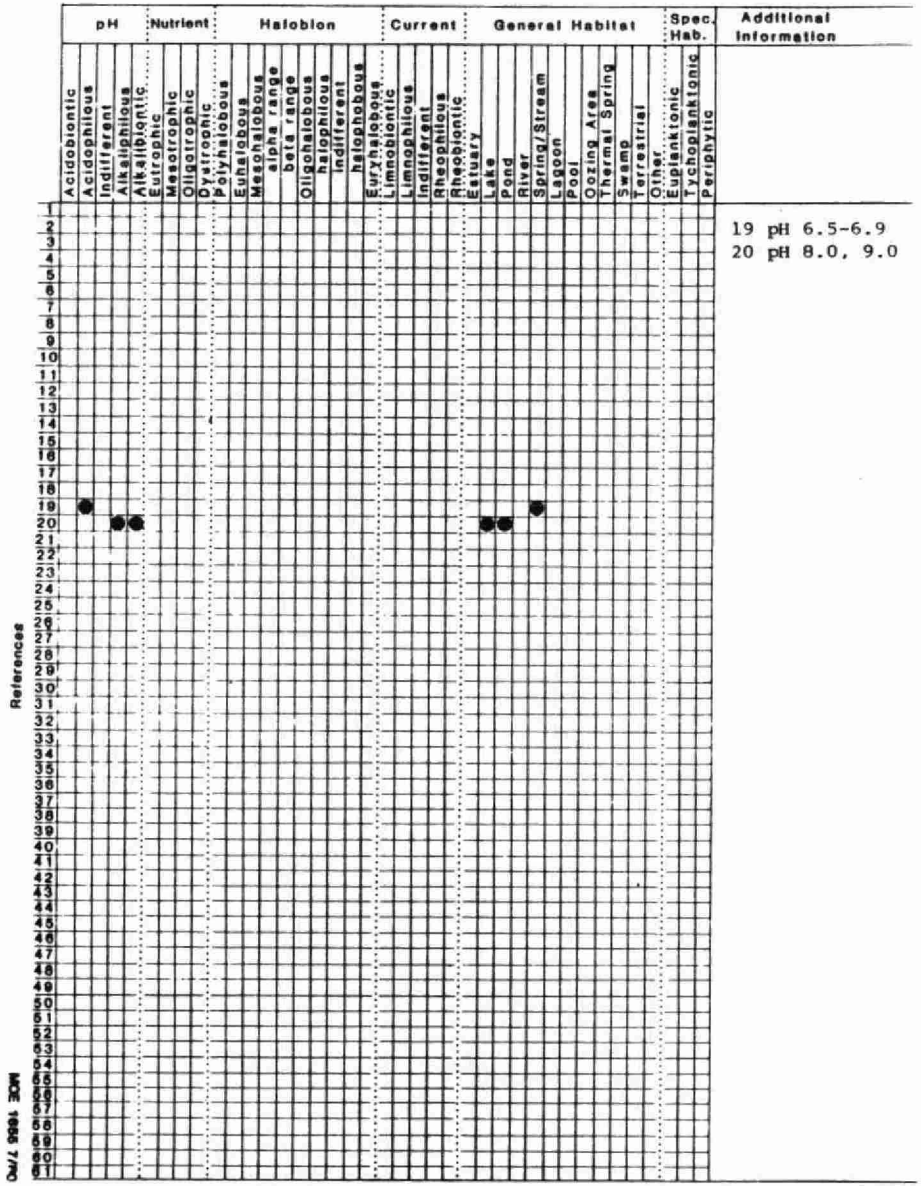


19 pH 6.5-8.4
9.0 +
20 pH 4.0-6.5
9.0 +

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Taxon Gomphonema montanum var. montanum f. suecica Grun.

Synonym Gomphonema longiceps var. montana f. suecica Grun.

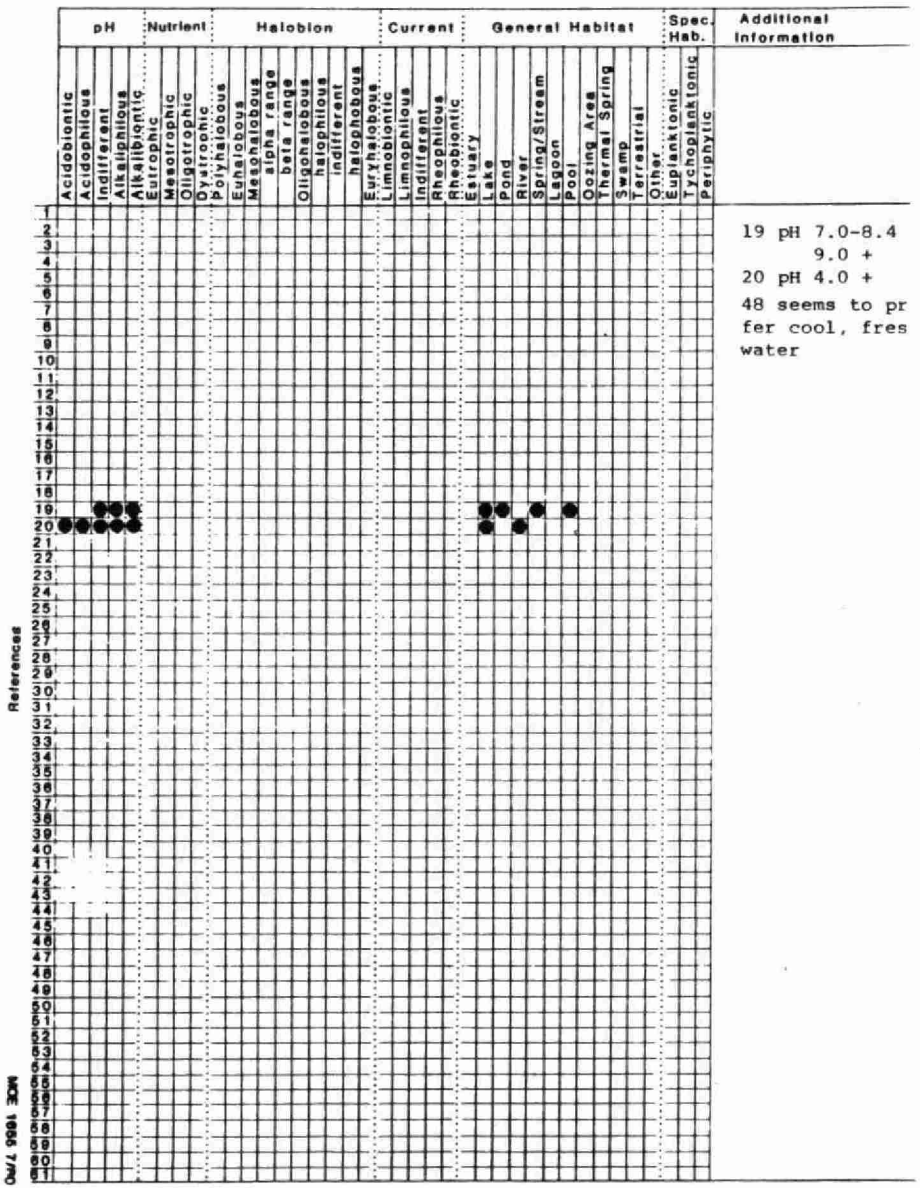


19 pH 6.5-6.9
20 pH 8.0, 9.0

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Taxon Gomphonema olivaceoides Hust.

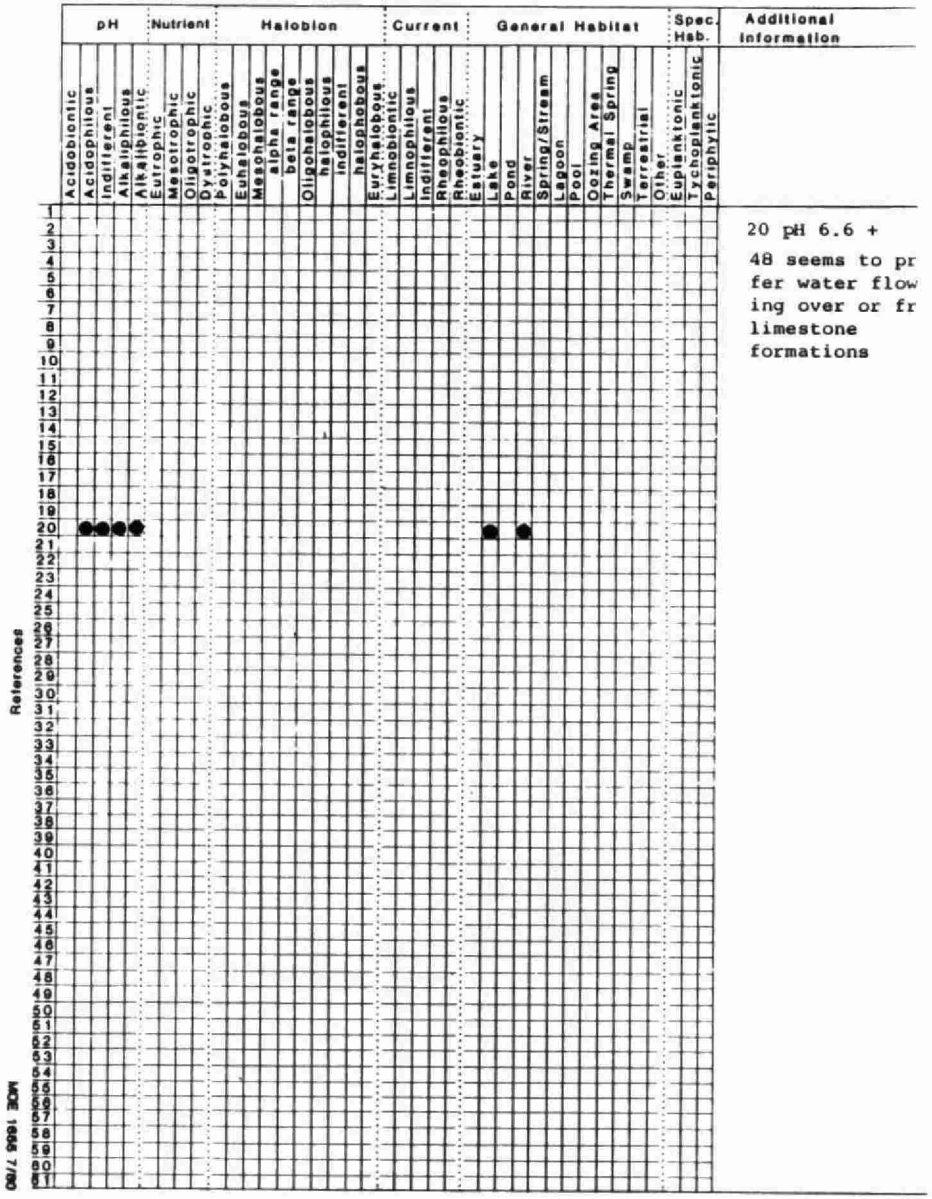
Synonym



19 pH 7.0-8.4
9.0 +
20 pH 4.0 +
48 seems to pr
fer cool, fres
water

Taxon Gomphonema olivaceum var. calcarea(Cl.) Cl.

Synonym

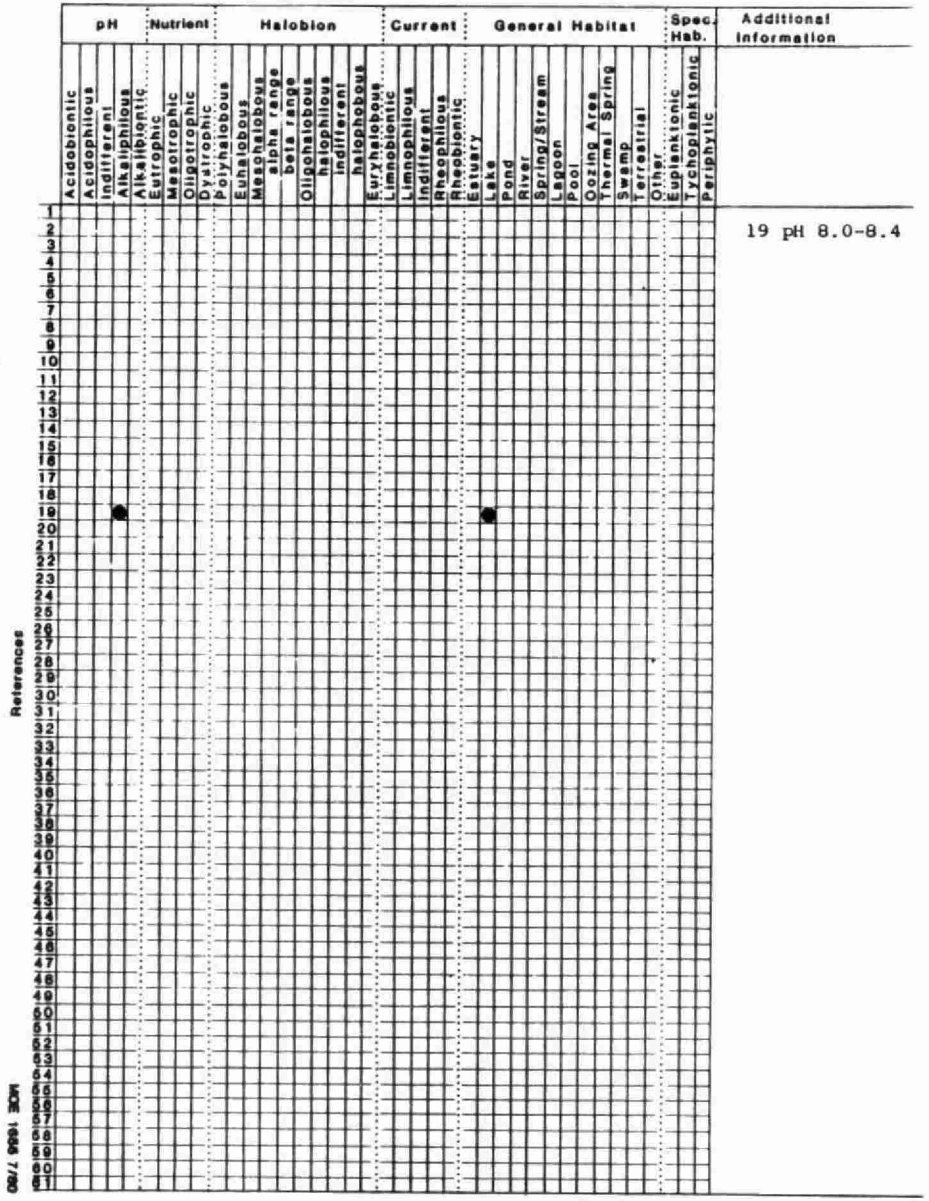


20 pH 6.6 +

48 seems to pr fer water flow ing over or fr limestone formations

Taxon Gomphonema olivaceum var. minutissima Hust.

Synonym

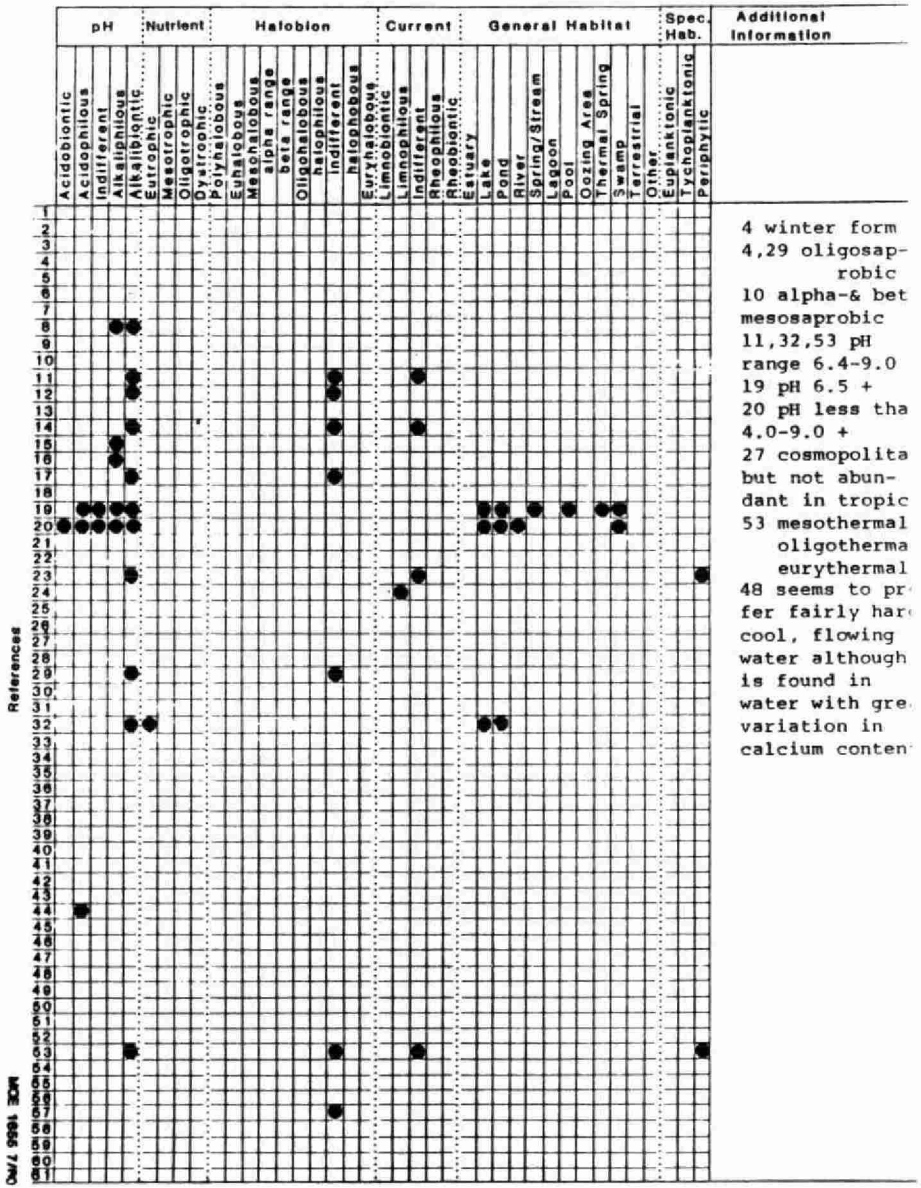


19 pH 8.0-8.4

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Taxon Gomphonema olivaceum (Lyng.) Kutz. var. olivaceum

Synonym Gomphonema olivaceum var. vulgaris Grun.



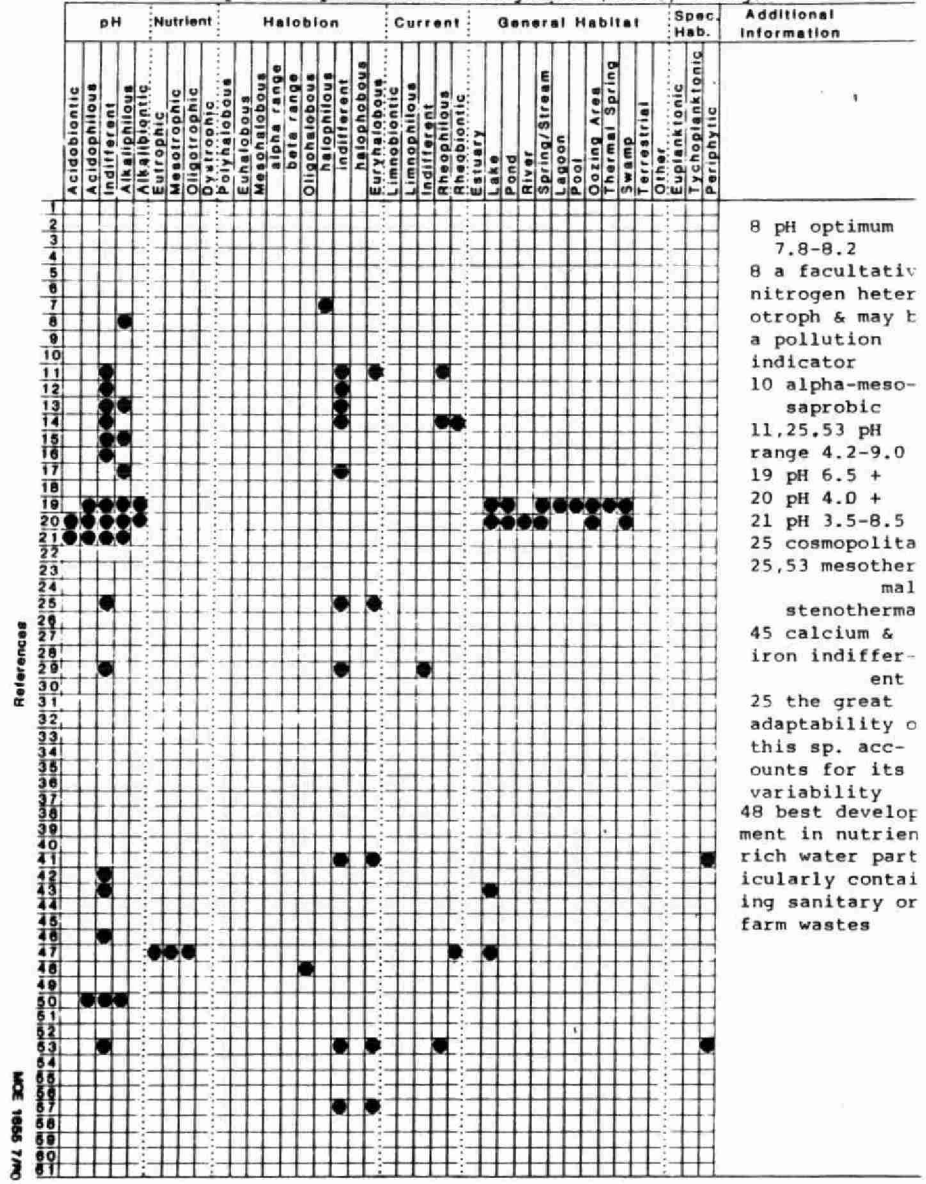
4 winter form
4,29 oligosaprobic
10 alpha-& bet mesosaprobic
11,32,53 pH range 6.4-9.0
19 pH 6.5 +
20 pH less tha 4.0-9.0 +
27 cosmopolita but not abundant in tropic
53 mesothermal oligotherma eurythermal
48 seems to pr fer fairly har cool, flowing water although is found in water with gre variation in calcium conten

Ministry of the Environment
Ontario

Taxon Gomphonema parvulum Kutz.

Synonym Gomphonema parvulum var. micropus (Kutz.) Cl. (Check Ref.4

Gomphonema parvulum var. lagenula (Kutz.) Freng.



8 pH optimum 7.8-8.2
8 a facultativ nitrogen heter otroph & may b a pollution indicator
10 alpha-meso- saprobic
11,25,53 pH range 4.2-9.0
19 pH 6.5 +
20 pH 4.0 +
21 pH 3.5-8.5
25 cosmopolita
25,53 mesother mal stenotherma
45 calcium & iron indiffer- ent
25 the great adaptability o this sp. acc- ounts for its variability
48 best develop ment in nutrien rich water part icularly contai ing sanitary or farm wastes

Ministry of the Environment
Ontario

Taxon Gomphonema rhombicum Fricke

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
20	●	●																							●			●												20 pH 6.5, 7.5

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Taxon Gomphonema sphaerophorum Ehr.

Synonym

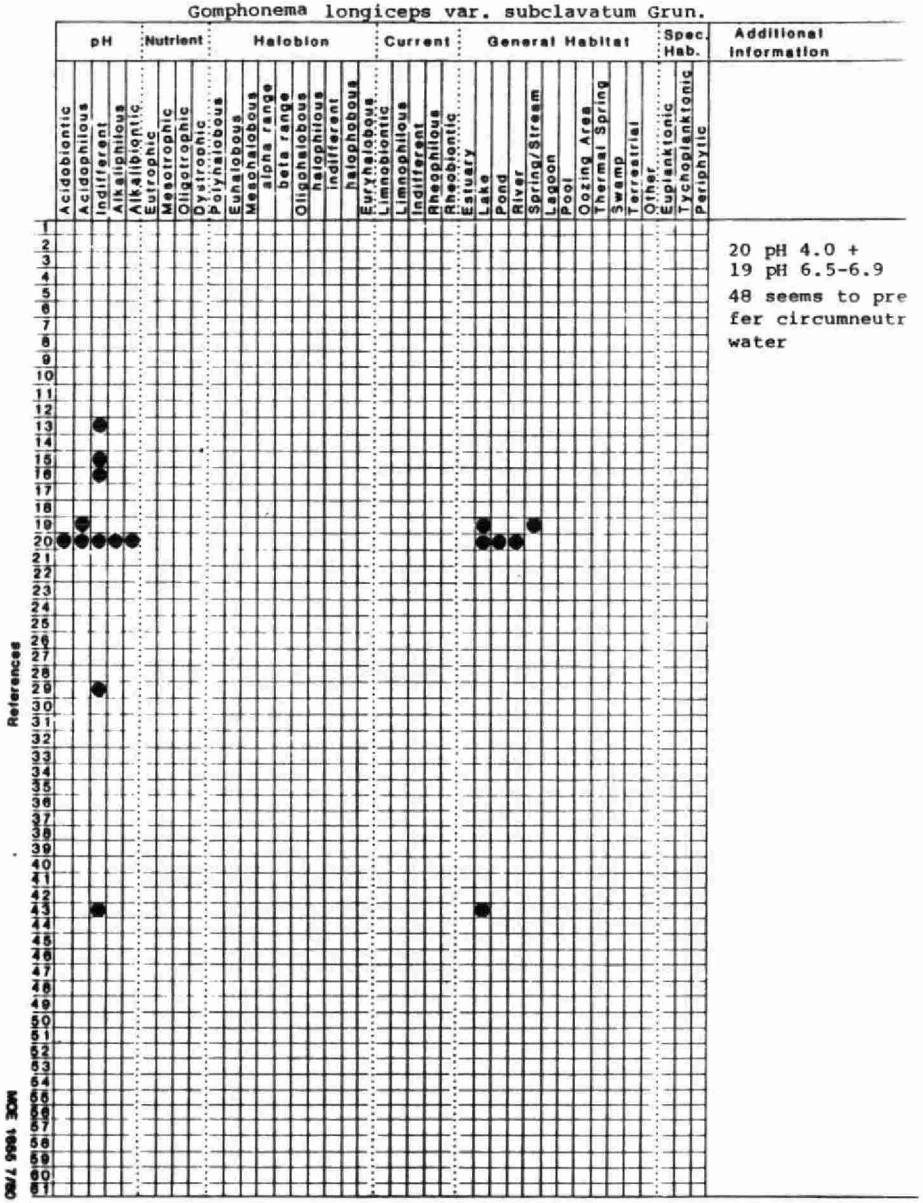
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional information
20		●																							●	●														20 pH 5.5-6.5 48 seems to pr fer medium t fairly hard water
48						●	●																																

MOE 1656 7/80

Taxon Gomphonema subclavatum (Grun.)Grun.

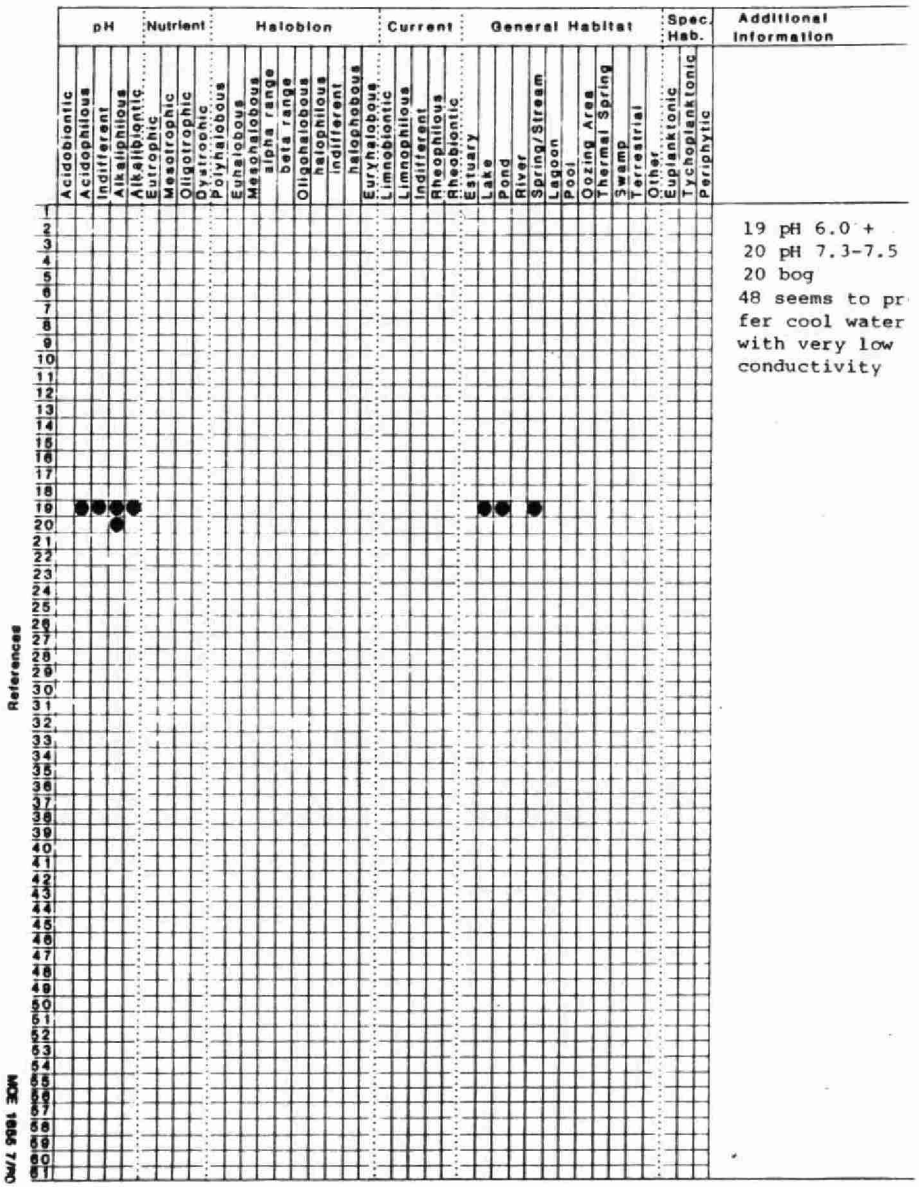
Synonym Gomphonema longiceps var subclavata f. gracilis Hust.

Gomphonema longiceps var. subclavatum Grun.



Taxon Gomphonema subtile var. sagitta (Schum.) Cl.

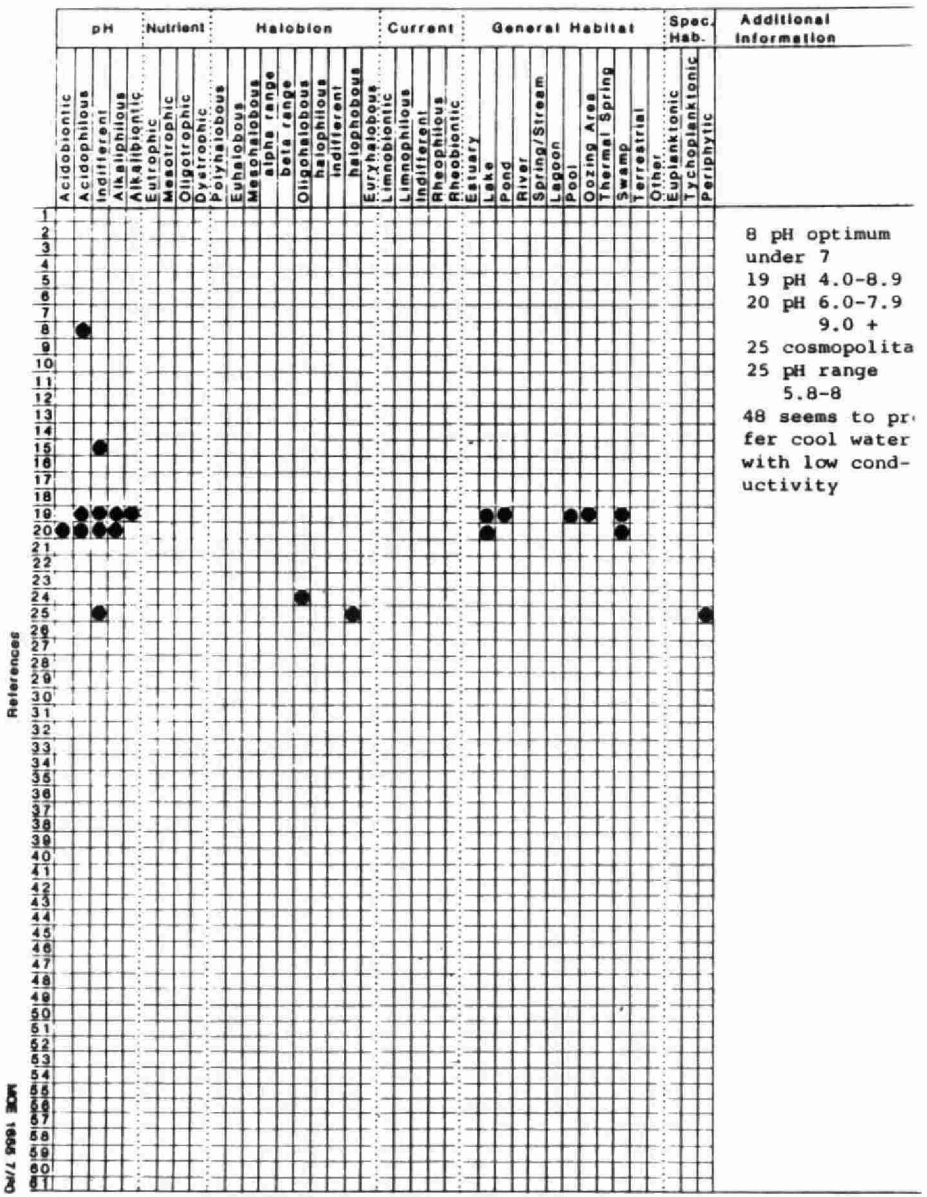
Synonym



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Taxon Gomphonema subtile Ehr. var. subtile

Synonym

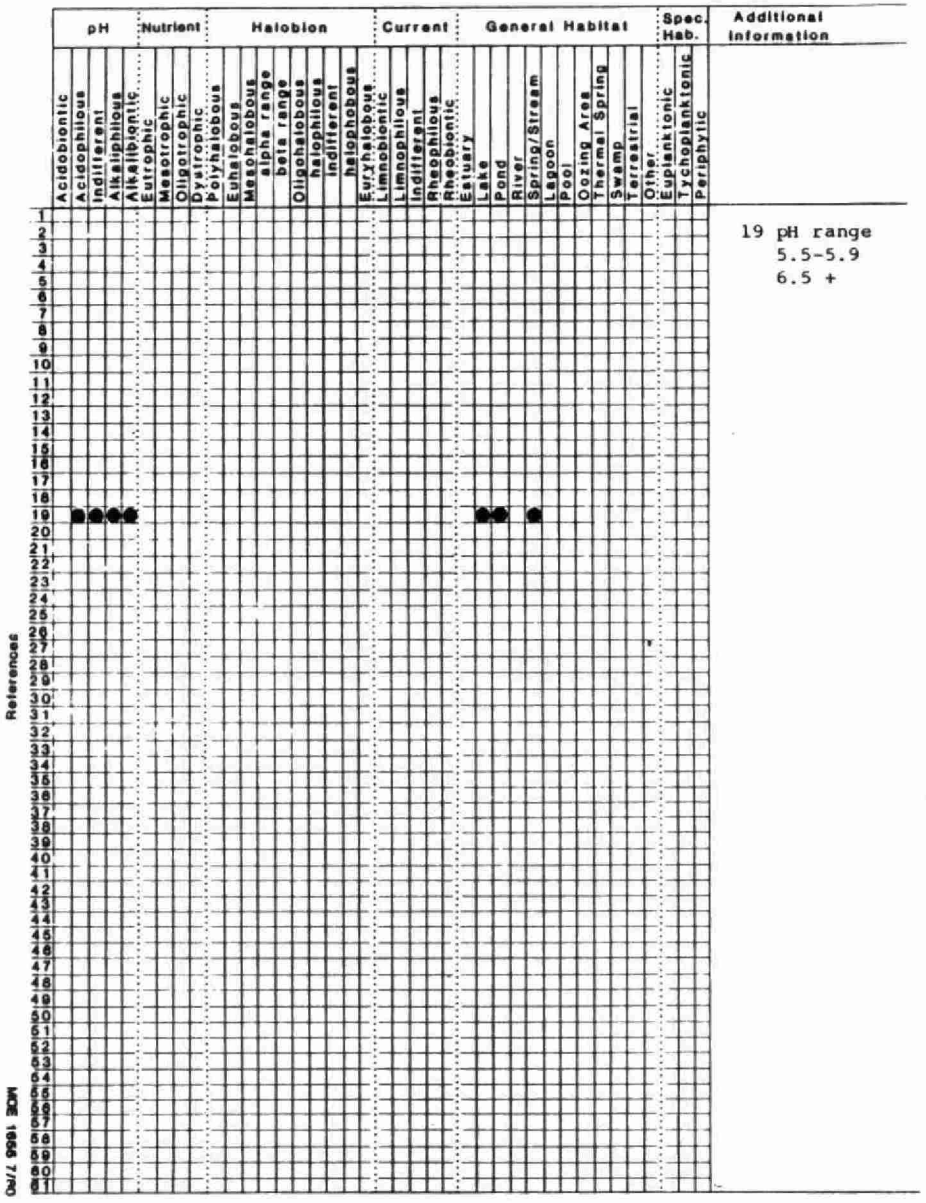


8 pH optimum under 7
19 pH 4.0-8.9
20 pH 6.0-7.9
9.0 +
25 cosmopolita
25 pH range 5.8-8
48 seems to pr fer cool water with low conductivity

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Taxon Gomphonema tenellum Kutz.

Synonym

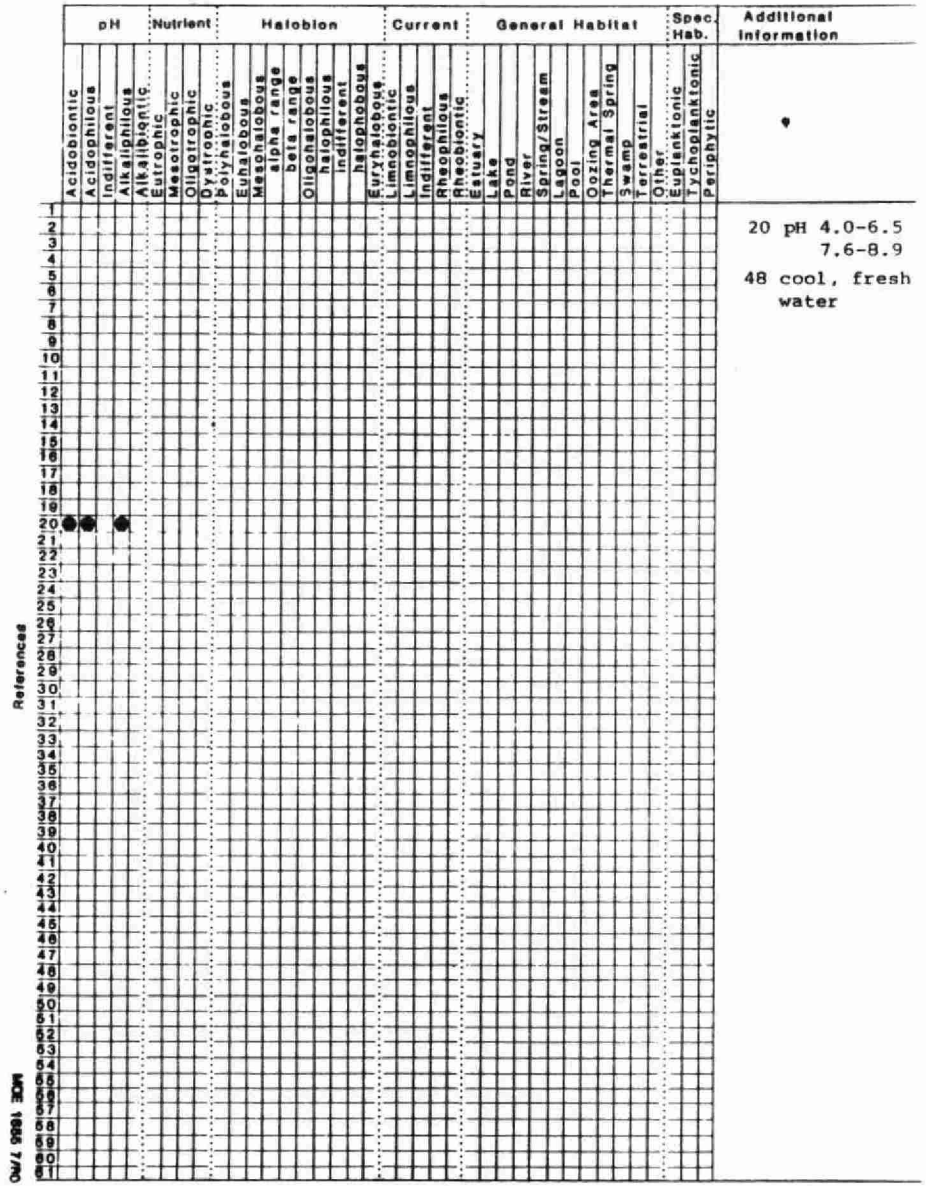


19 pH range
5.5-5.9
6.5 +

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Taxon Gomphonema tergestinum (Grun.) Fricke

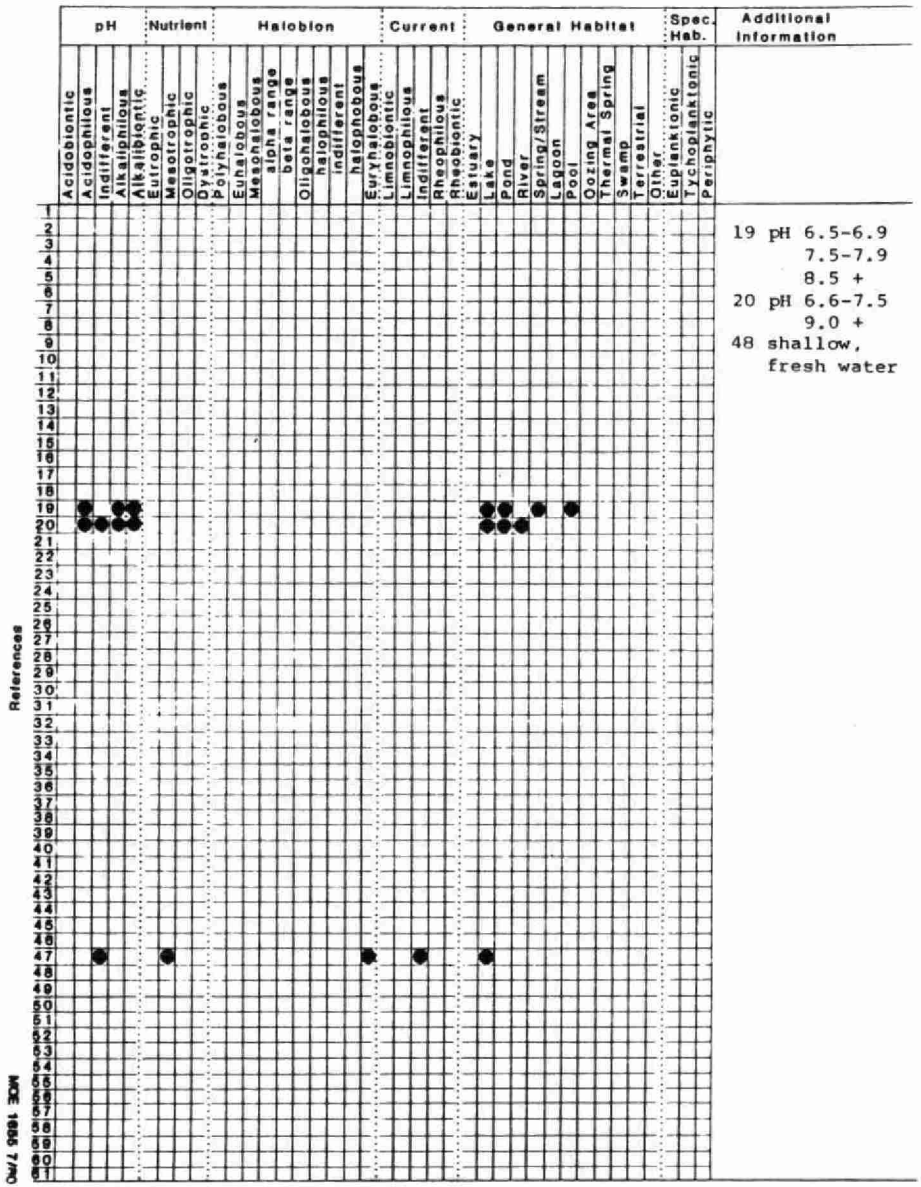
Synonym Gomphonema semiapertum var. tergestina Grun.



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Taxon Gomphonema truncatum var. capitatum (Ehr.) Patr.

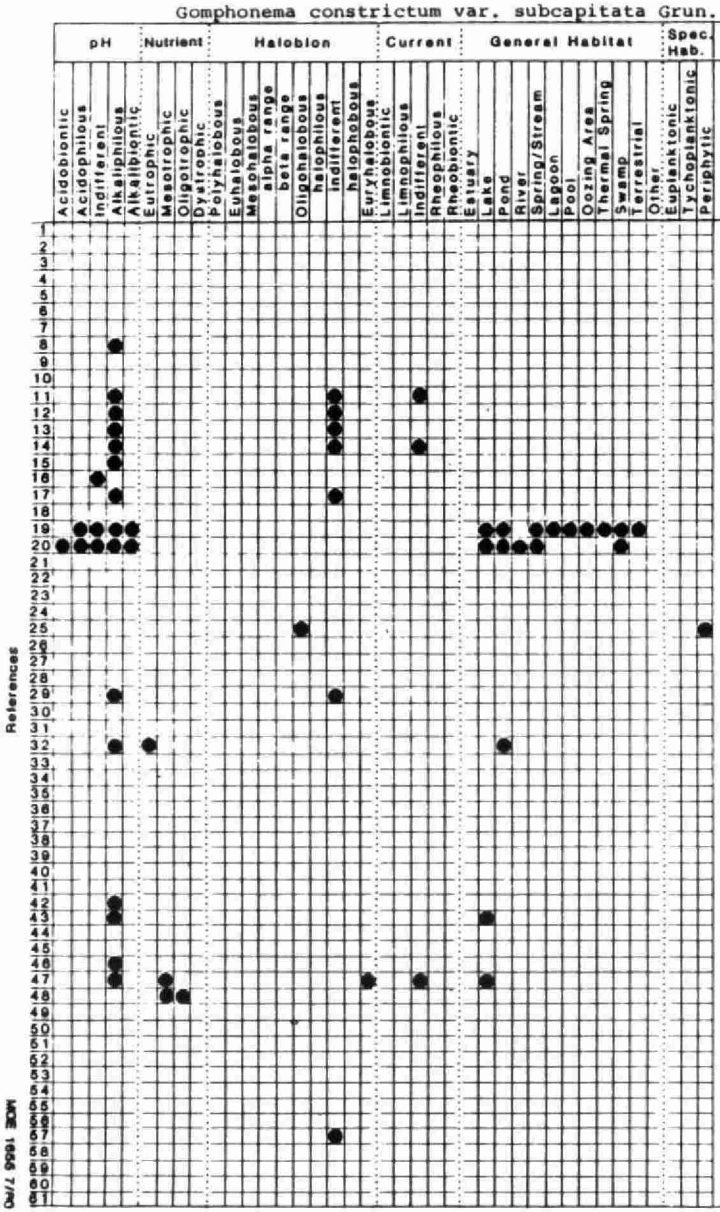
Synonym Gomphonema constrictum var. capitatum(Ehr.) V. Heurck



Taxon Gomphonema truncatum Ehr. var. truncatum

Synonym Gomphonema constrictum Ehr. emend. Kutz.

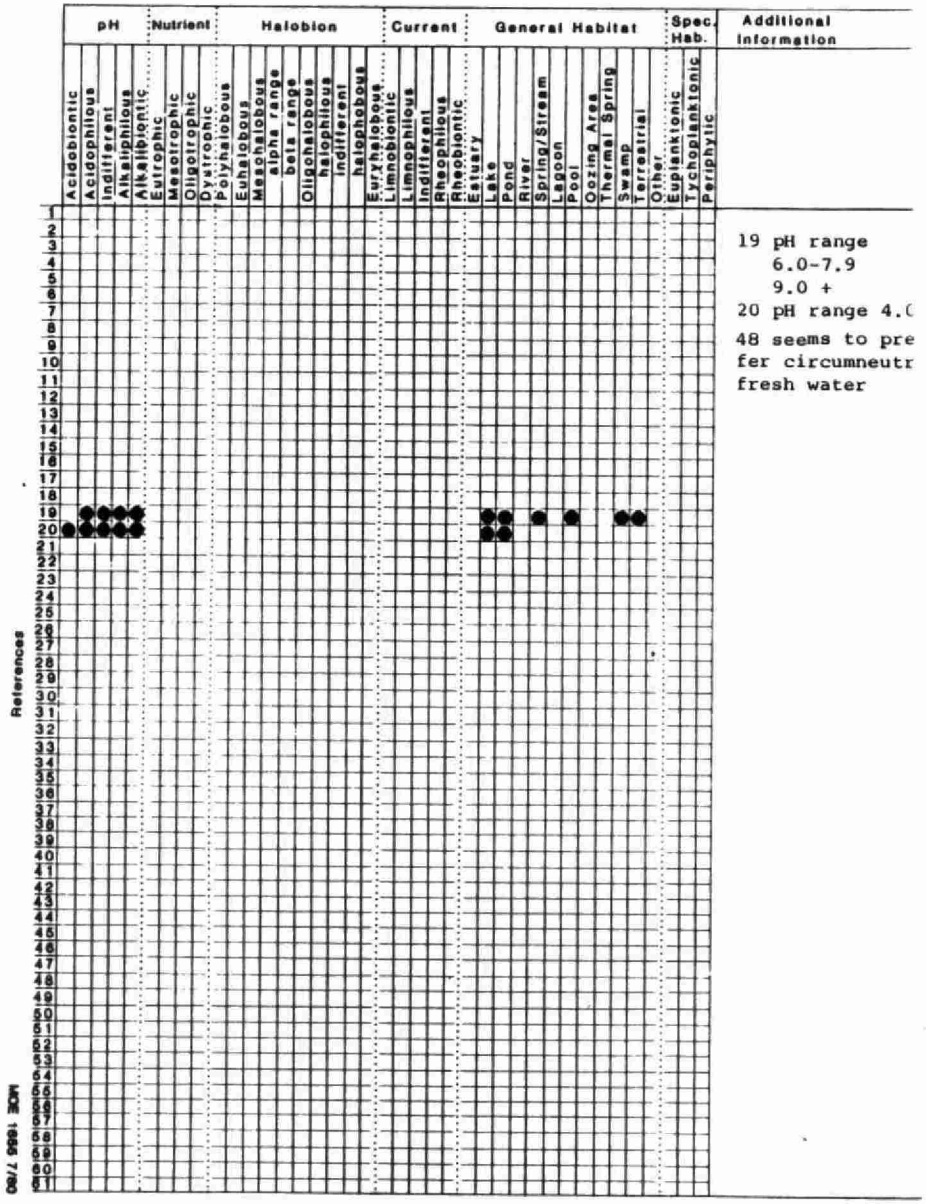
Gomphonema constrictum var. subcapitata Grun.



8 pH optimum around 8
10 alpha-& beta mesosaprobic oligosaprobic
11,32 pH range 6.2-9
19 pH 5.5 +
20 pH 4.0 +
25 cosmopolitan
29,41 oligosaprobic
45 calciphilous
48 fresh, circum neutral water with moderate hardness; tolerant of fairly wide range of cool to moderately warm water

Taxon Gomphonema turris Ehr.

Synonym Gomphonema acuminatum var. turris (Ehr.) Cl.



19 pH range
6.0-7.9
9.0 +
20 pH range 4.0
48 seems to prefer circumneutr
fresh water

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Taxon Gomphonema ventricosum Greg.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Current: Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19	●	●	●																									●													19 pH 6.5-7.4
48																																								48 cool, fresh water

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Taxon Grammatophora gibberula Kutz.

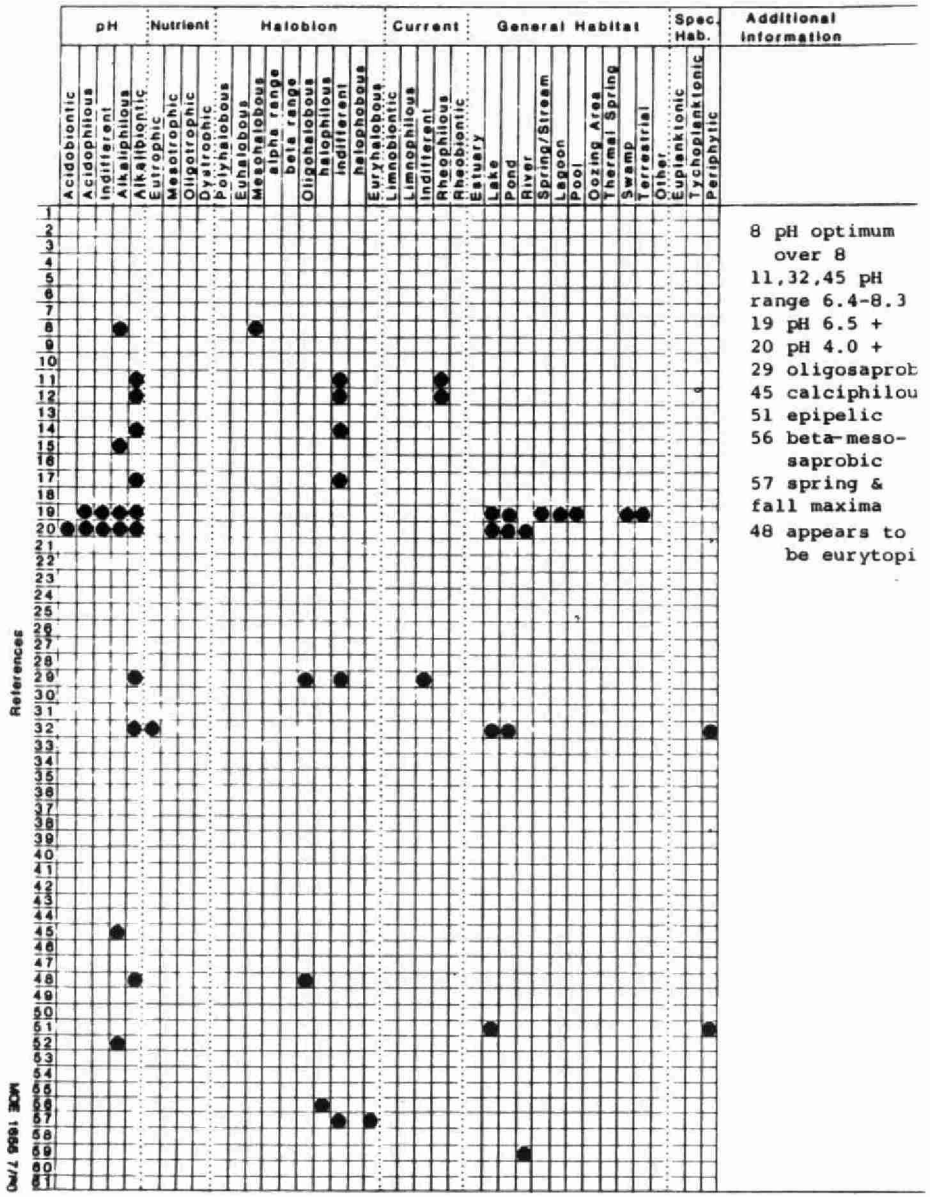
Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Current: Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
20		●								●																		●													20 pH 6.3

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Taxon Gyrosigma acuminatum (Kutz.) Rabh.

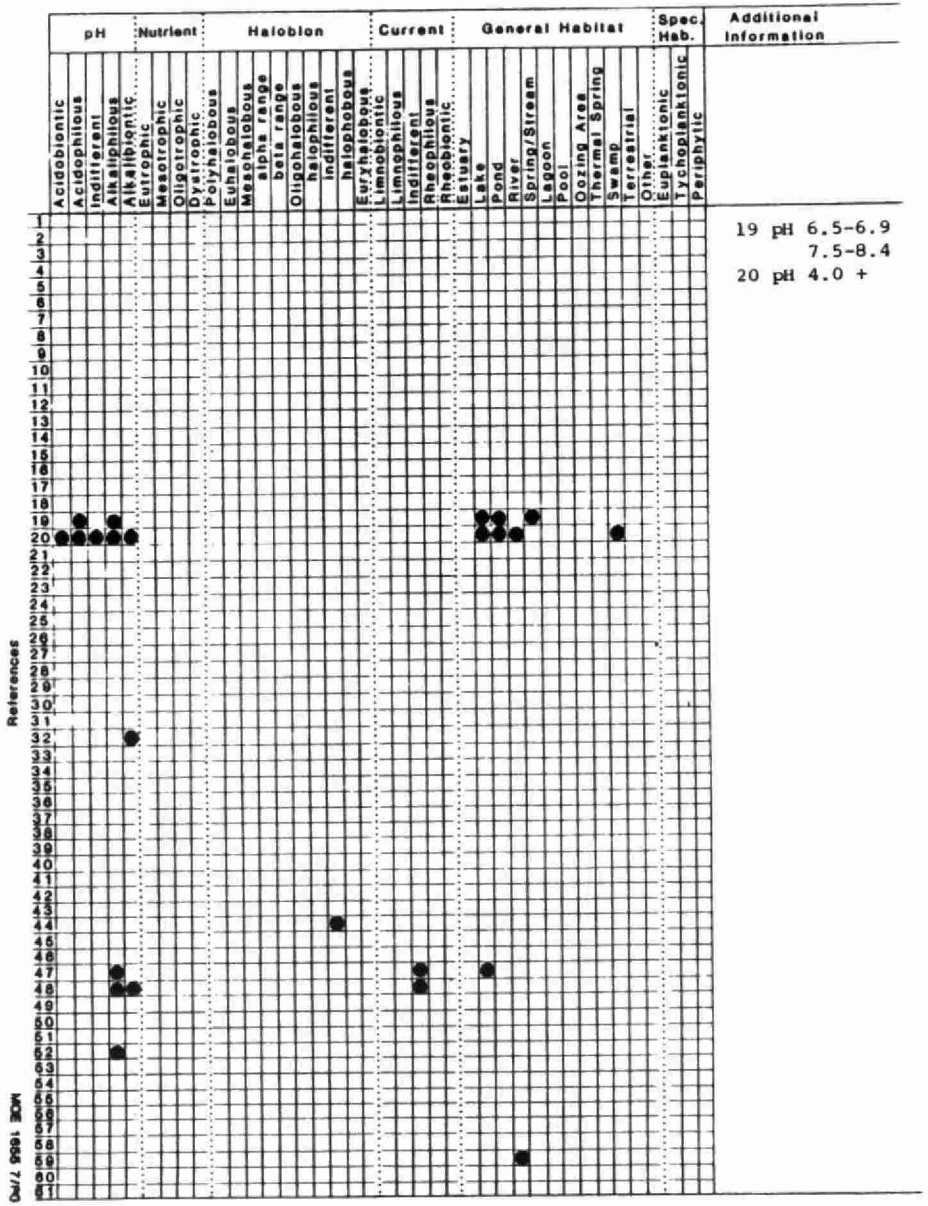
Synonym Pleurosigma acuminatum (Kutz.) Grun.



8 pH optimum over 8
11,32,45 pH range 6.4-8.3
19 pH 6.5 +
20 pH 4.0 +
29 oligosaprob
45 calciphilou
51 epipelic
56 beta-meso-saprobic
57 spring & fall maxima
48 appears to be eurytopi

Taxon Gyrosigma attenuatum (Kutz.) Rabh.

Synonym Pleurosigma attenuatum (Kutz.) W. Sm.

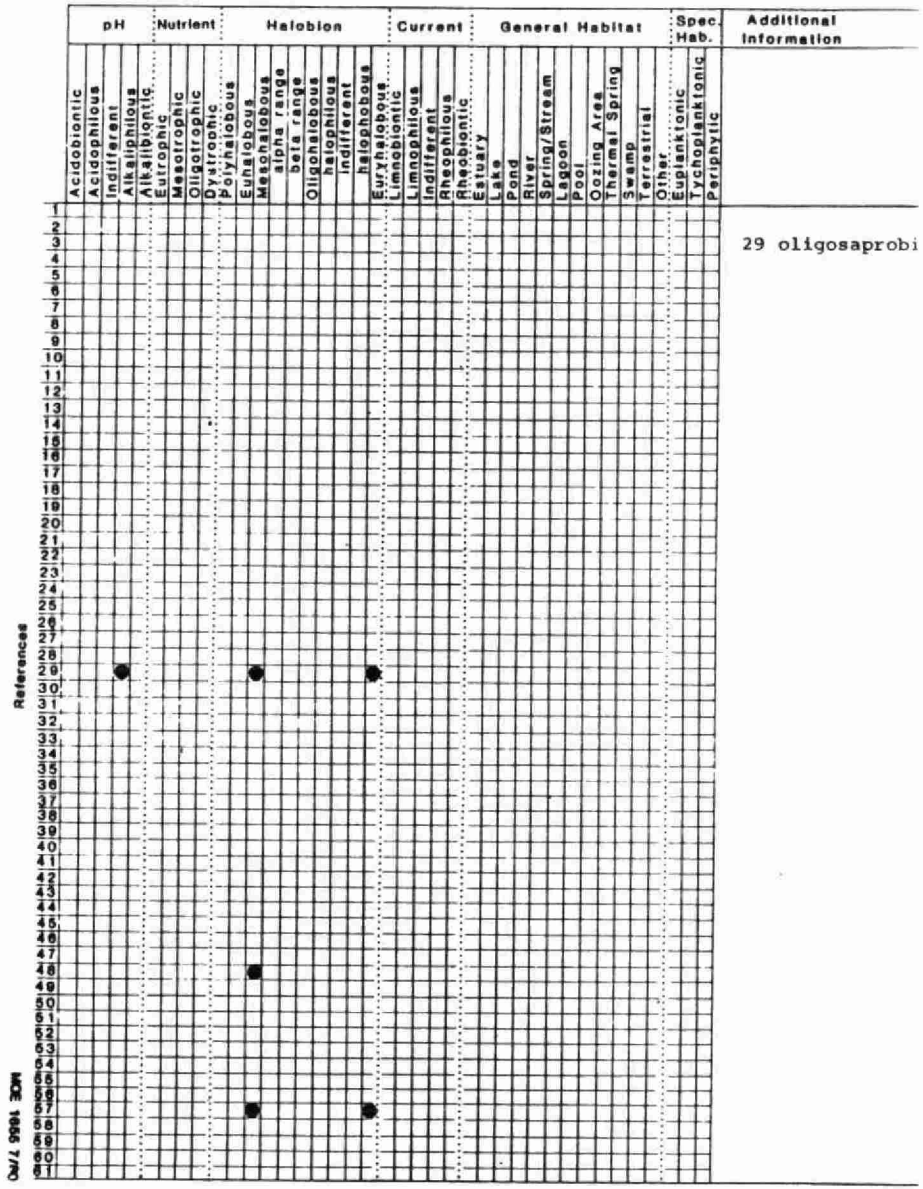


19 pH 6.5-6.9
7.5-8.4
20 pH 4.0 +

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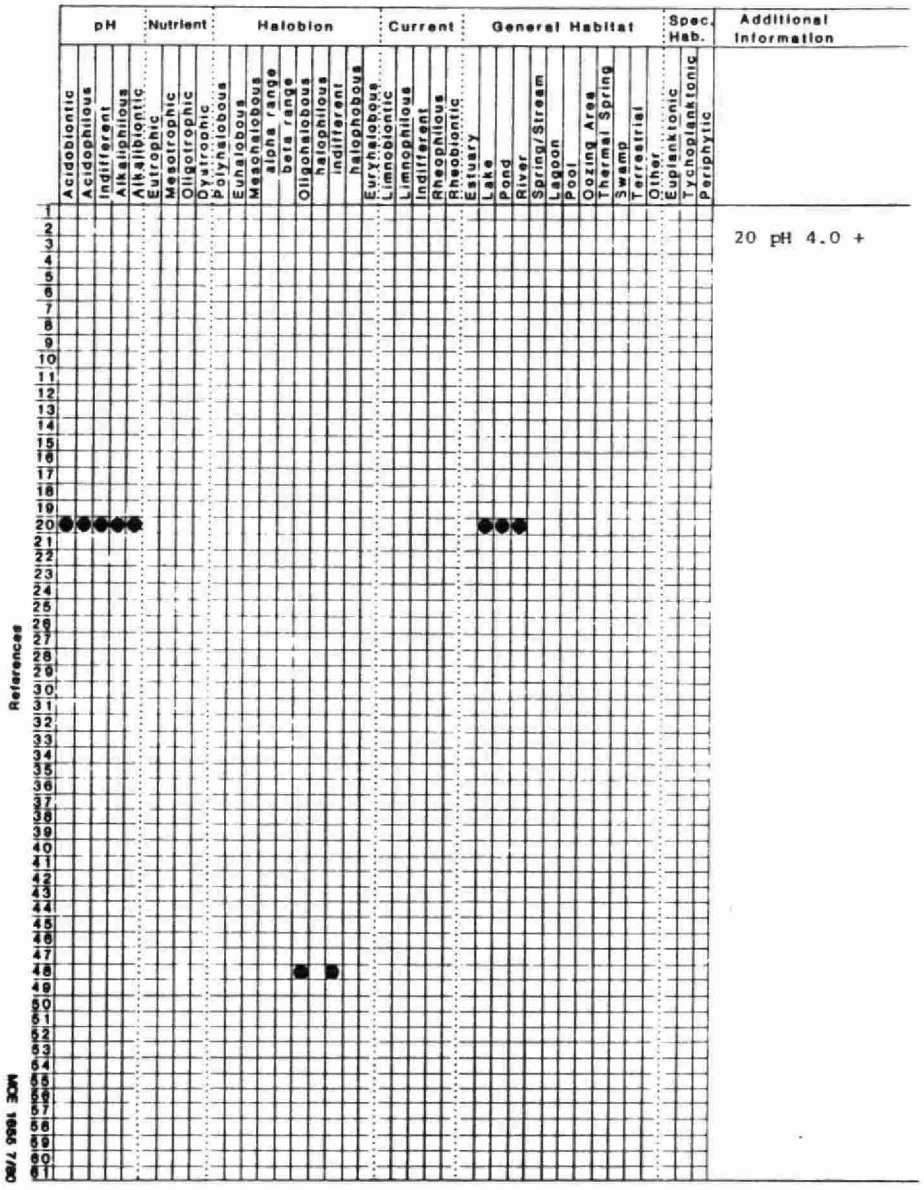
Taxon Gyrosigma macrum (W.Sm.)Griff and Henfr.

Synonym Pleurosigma macrum W. Sm.



Taxon Gyrosigma nodiferum (Grun.) Reim.

Synonym Gyrosigma spencerii var. nodifera (Grun.) Cl.



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Taxon Gyrosigma peisonis (Grun.)Hust.

Synonym

pH					Nutrient				Halobion							Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
																																						19 pH 6.5-6.9
											●																		●									

References

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Taxon Gyrosigma rautenbachiae

Synonym

pH					Nutrient				Halobion							Current					General Habitat										Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
																																						21 pH 7.1,8.5
	●																																					

References

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Taxon Gyrosigma scalproides (Rabh.)Cl. var. scalproides

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic
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8 pH optimum 8.3-8.6
8,11 pH range 6.7-8.6
24 found in ditches
25 pH 7.7
29 oligosaprobic
25 aerophilous

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Taxon Gyrosigma spencerii var. acutiuscula (Grun.)Skv.

Synonym

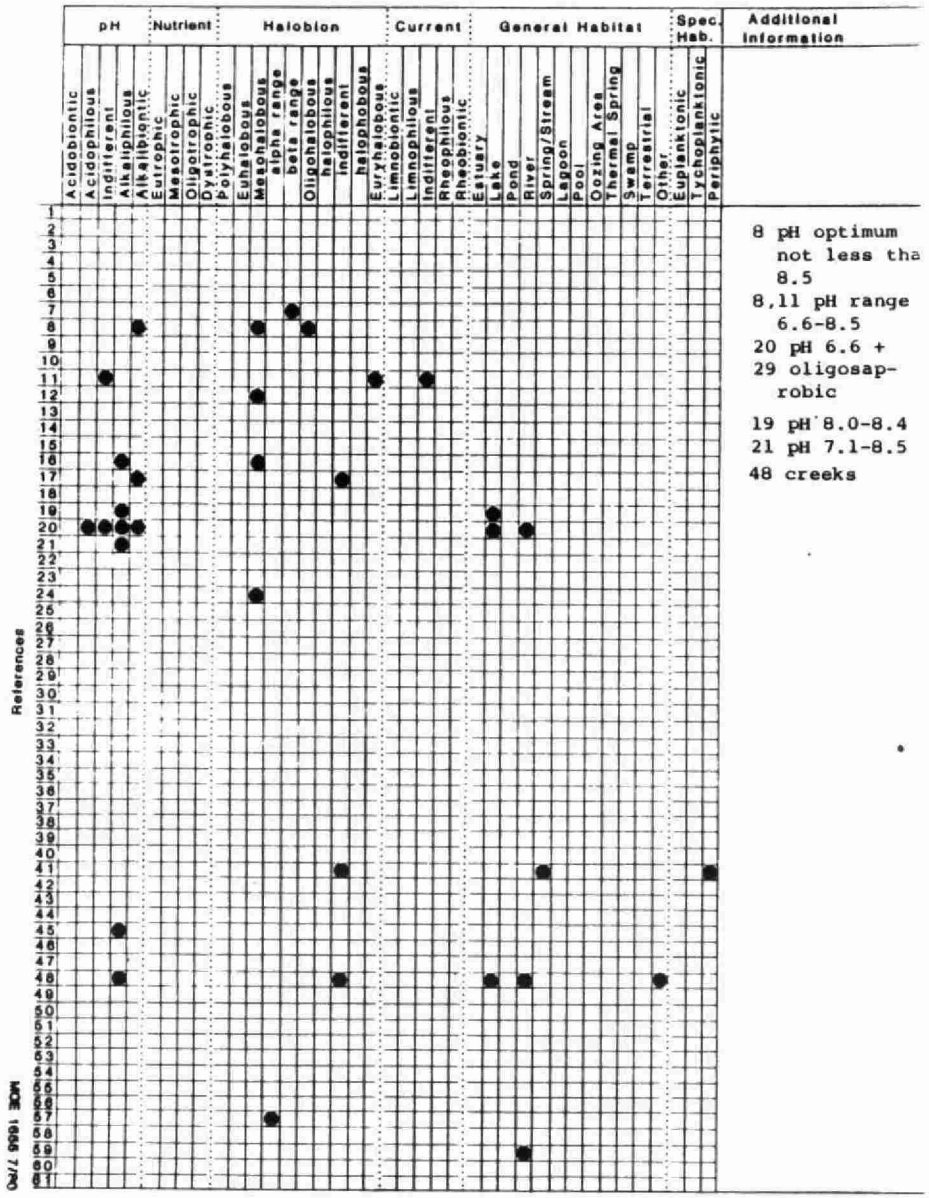
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic
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Taxon Gyrosigma spencerii (Quek.)Griff. and Henfr. var. spencerii

Synonym Gyrosigma kutzingii (Grun.)Cl.

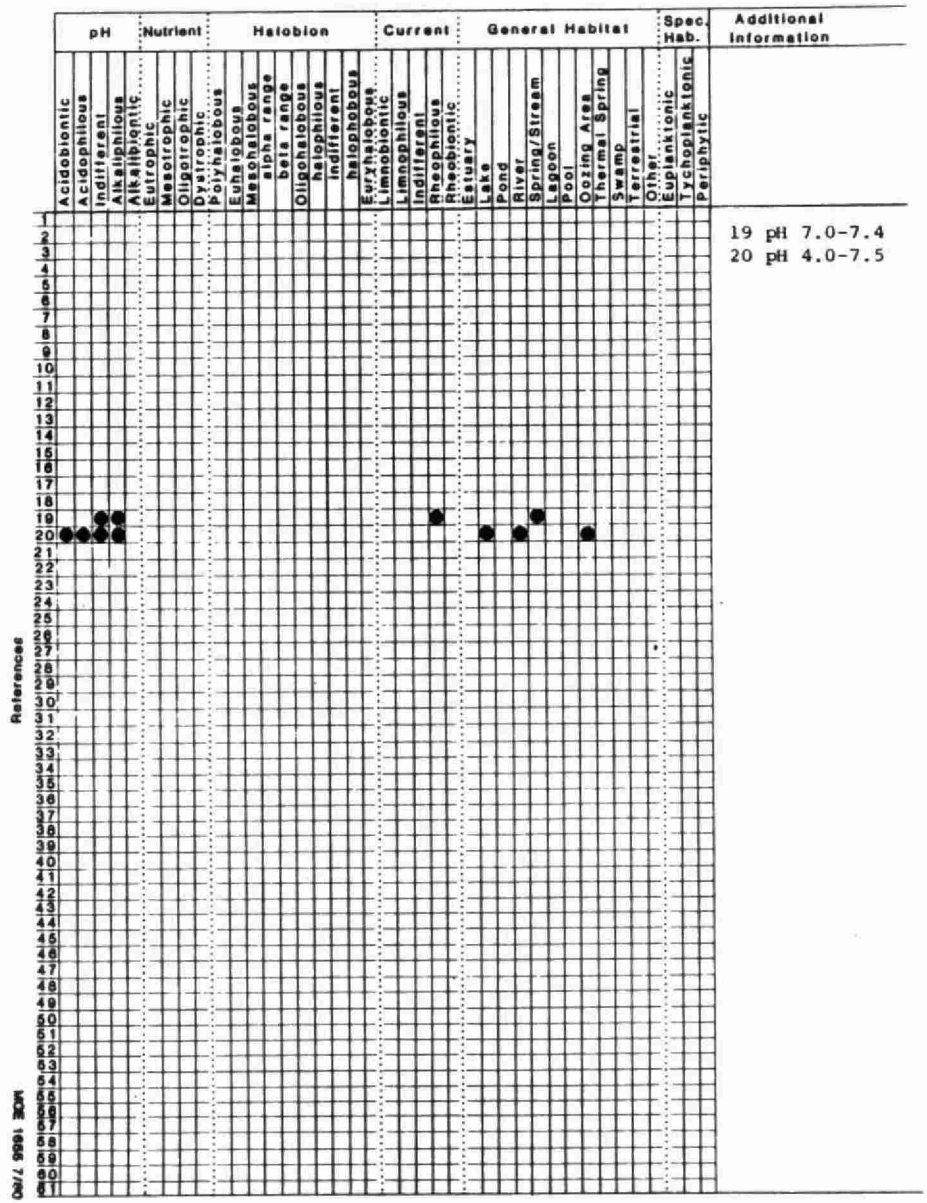


8 pH optimum not less tha 8.5
8,11 pH range 6.6-8.5
20 pH 6.6 + 29 oligosaprobic
19 pH 8.0-8.4
21 pH 7.1-8.5
48 creeks

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Ontario

Taxon Hannaea arcus var. amphioxys (Rabh.) Patr.

Synonym Ceratoneis arcus var. amphioxys (Rabh.) Brun.

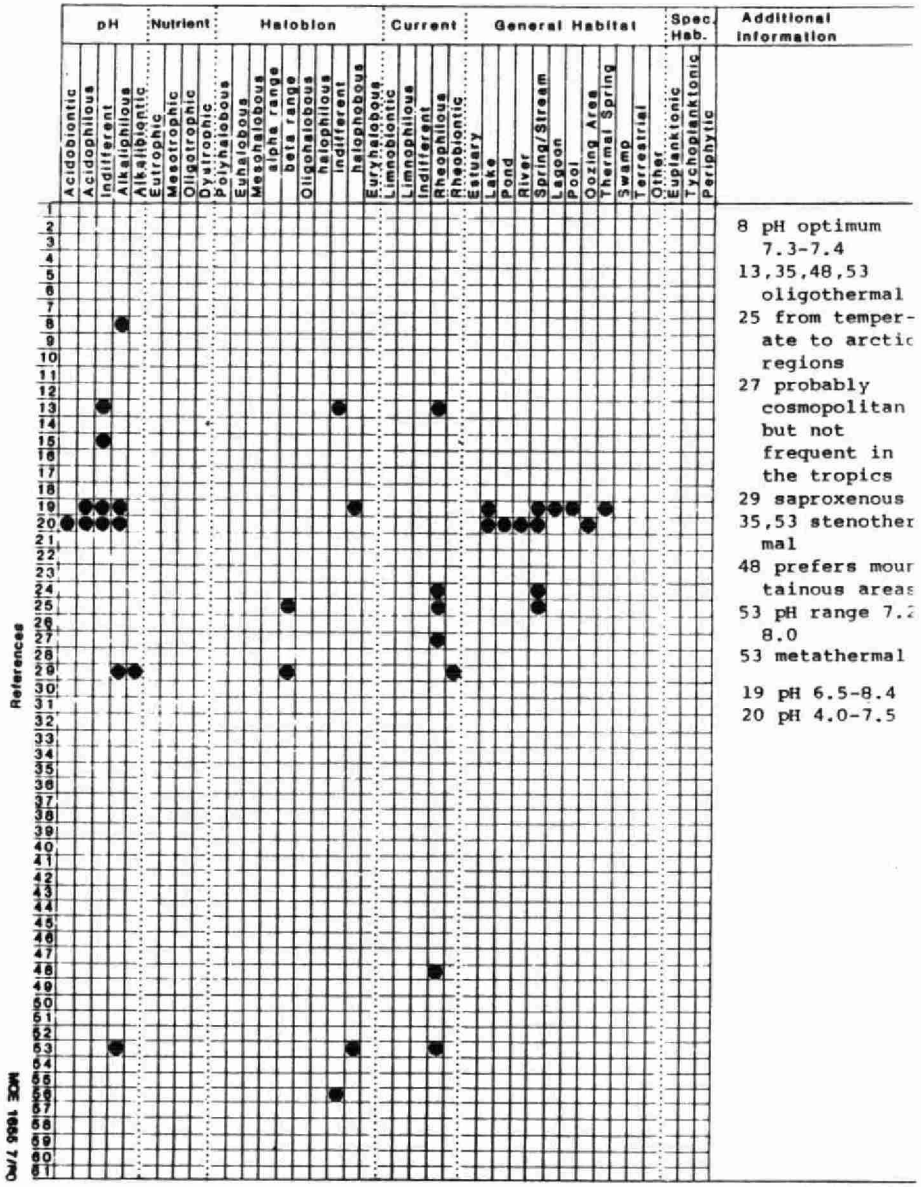


19 pH 7.0-7.4
20 pH 4.0-7.5

Ministry of the Environment
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Taxon Hannaea arcus (Ehr.)Patr. var. arcus

Synonym Ceratoneis arcus (Ehr.) Kutz.



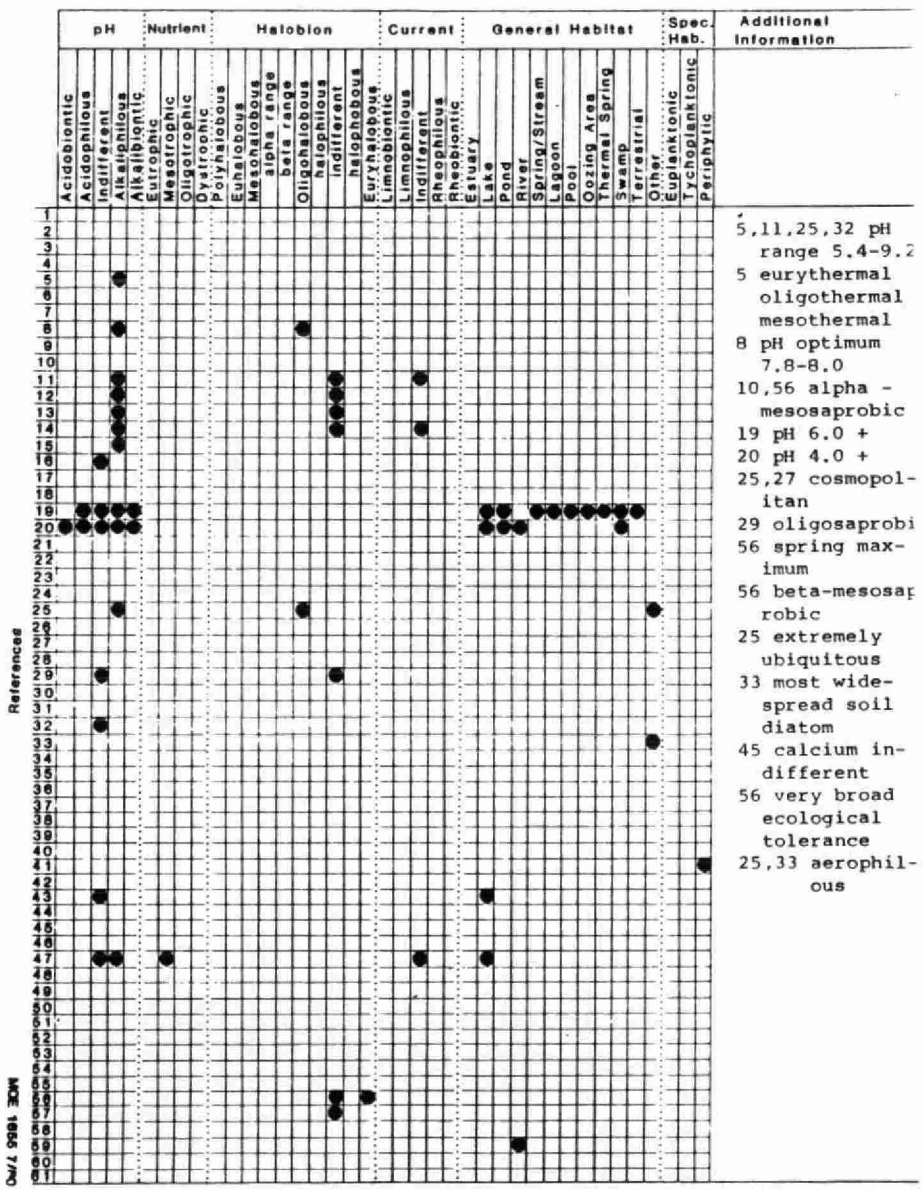
8 pH optimum 7.3-7.4
13,35,48,53 oligothermal
25 from temperate to arctic regions
27 probably cosmopolitan but not frequent in the tropics
29 saproxenous
35,53 stenothermal
48 prefers mountainous areas
53 pH range 7.2 8.0
53 metathermal

19 pH 6.5-8.4
20 pH 4.0-7.5

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Taxon Hantzschia amphioxys (Ehr.)Grun. var. amphioxys

Synonym

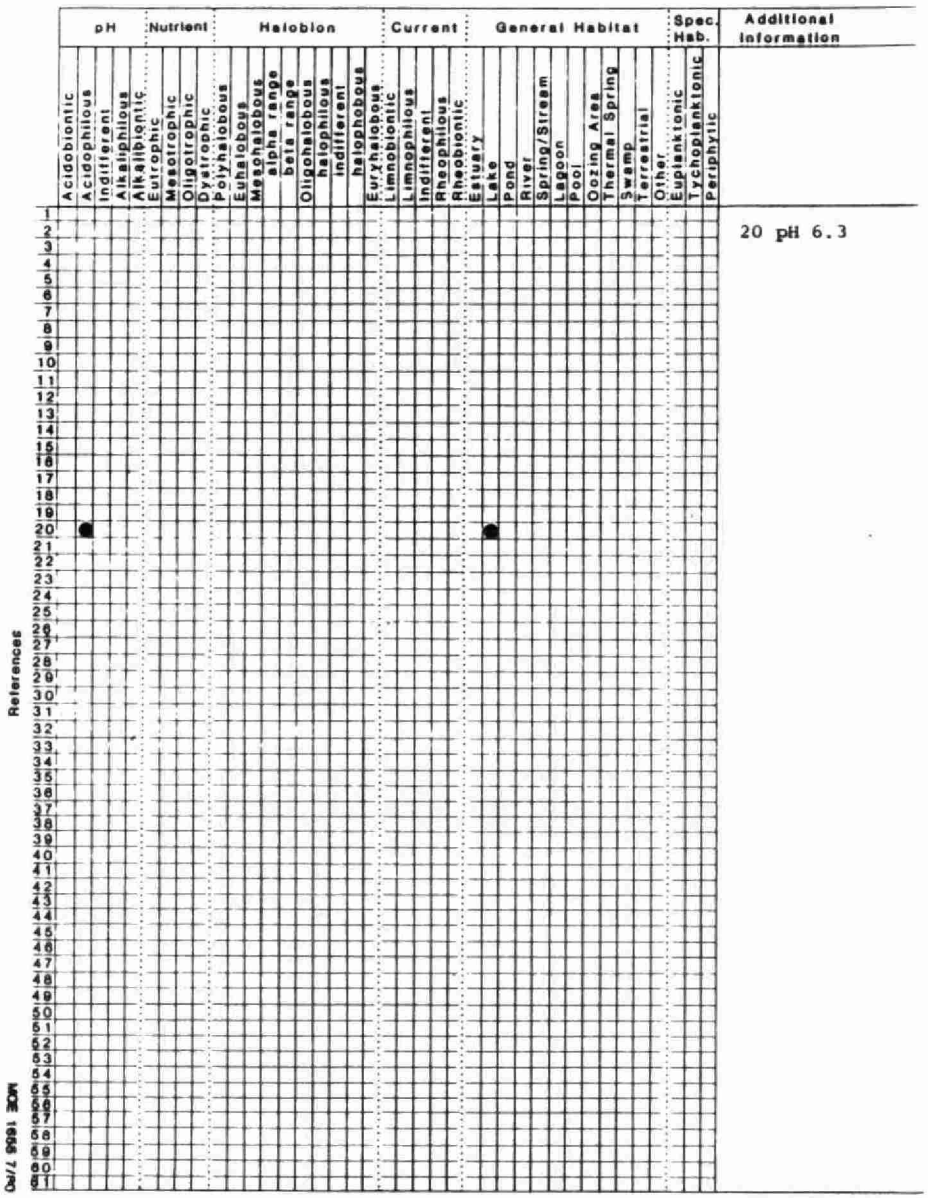


5,11,25,32 pH range 5.4-9.2
5 eurythermal oligothermal mesothermal
8 pH optimum 7.8-8.0
10,56 alpha - mesosaprobic
19 pH 6.0 +
20 pH 4.0 +
25,27 cosmopolitan
29 oligosaprobi
56 spring maximum
56 beta-mesosaprobic
25 extremely ubiquitous
33 most widespread soil diatom
45 calcium indifferent
56 very broad ecological tolerance
25,33 aerophilous

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Taxon Hantzschia amphioxys var. vivax (Hantzch.)Grun.

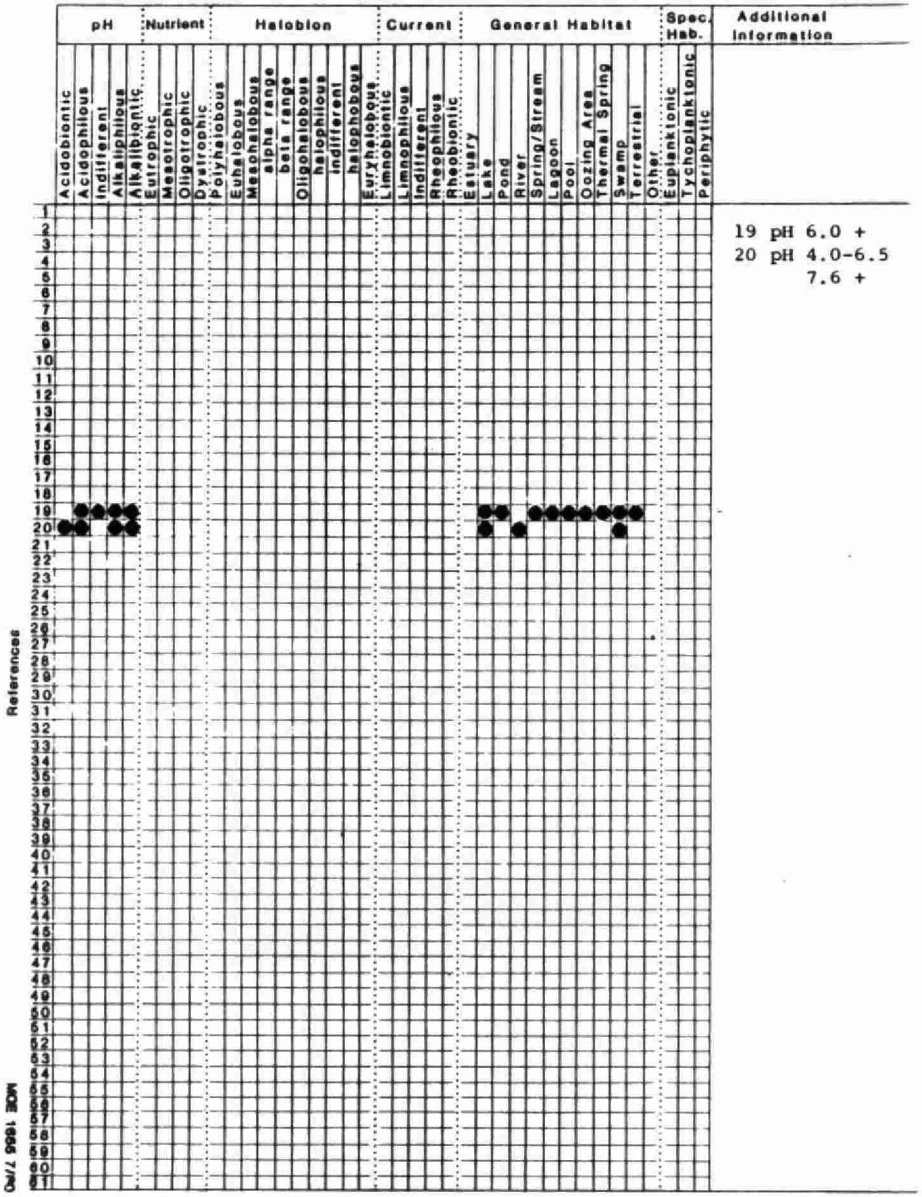
Synonym



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Taxon Hantzschia amphioxys var. maior Grun.

Synonym



Ministry of the Environment
Ontario

Taxon Hantzschia virgata (Roper)Grun. var. virgata

Synonym

References	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
12											●																												
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Ministry of the Environment
Ontario

Taxon Mastogloia sp.

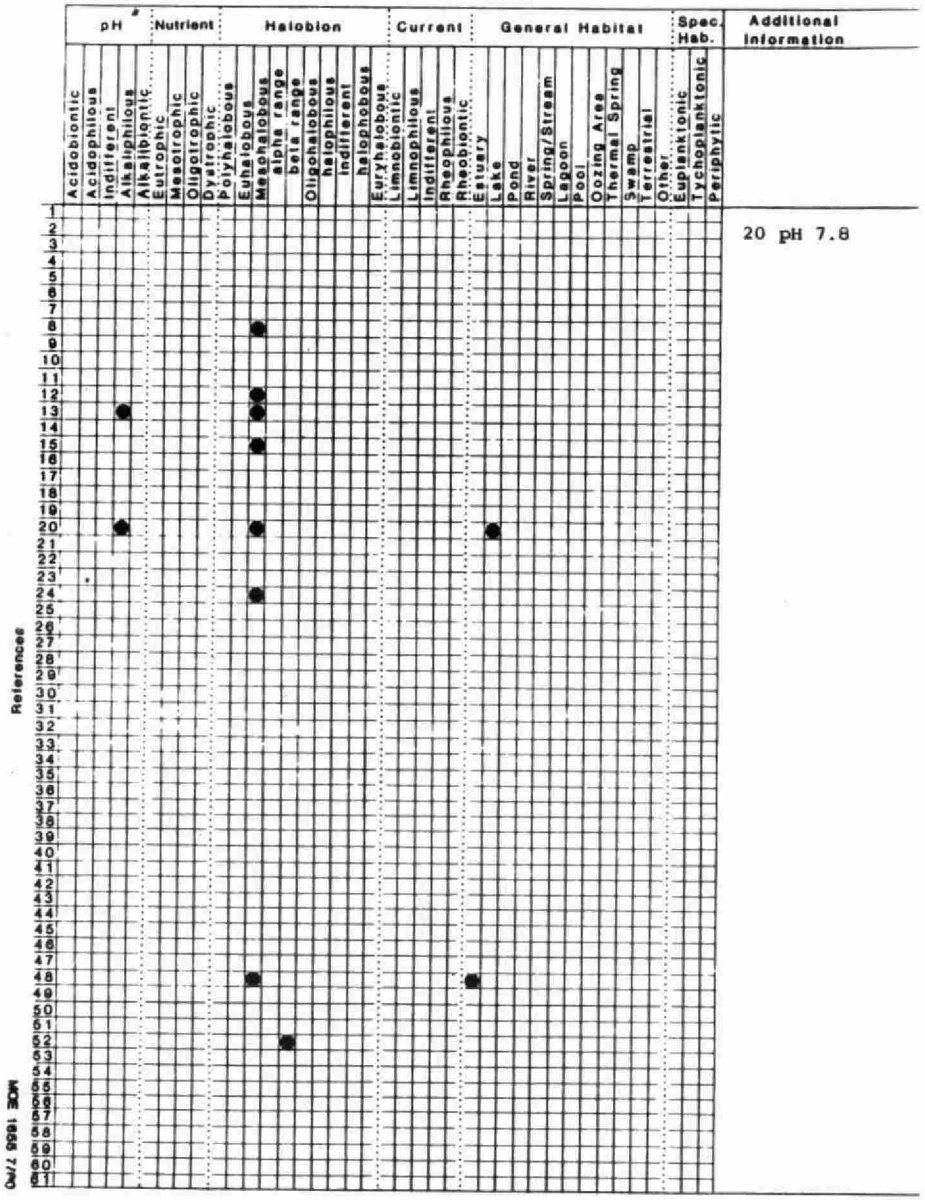
Synonym

References	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
52				●																																			

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Taxon Mastogloia braunii Grun.

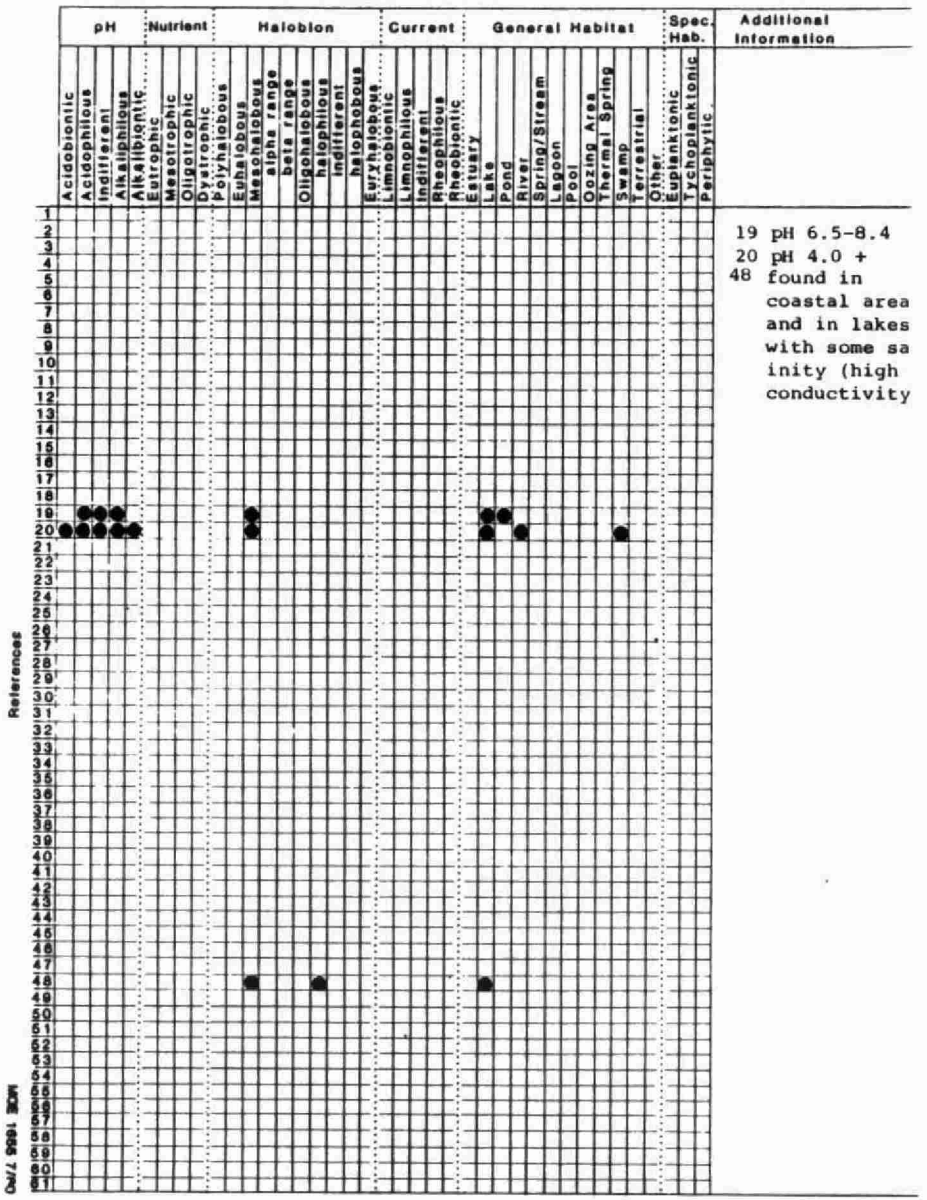
Synonym



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Taxon Mastogloia elliptica var. danseii (Thw.) Cl.

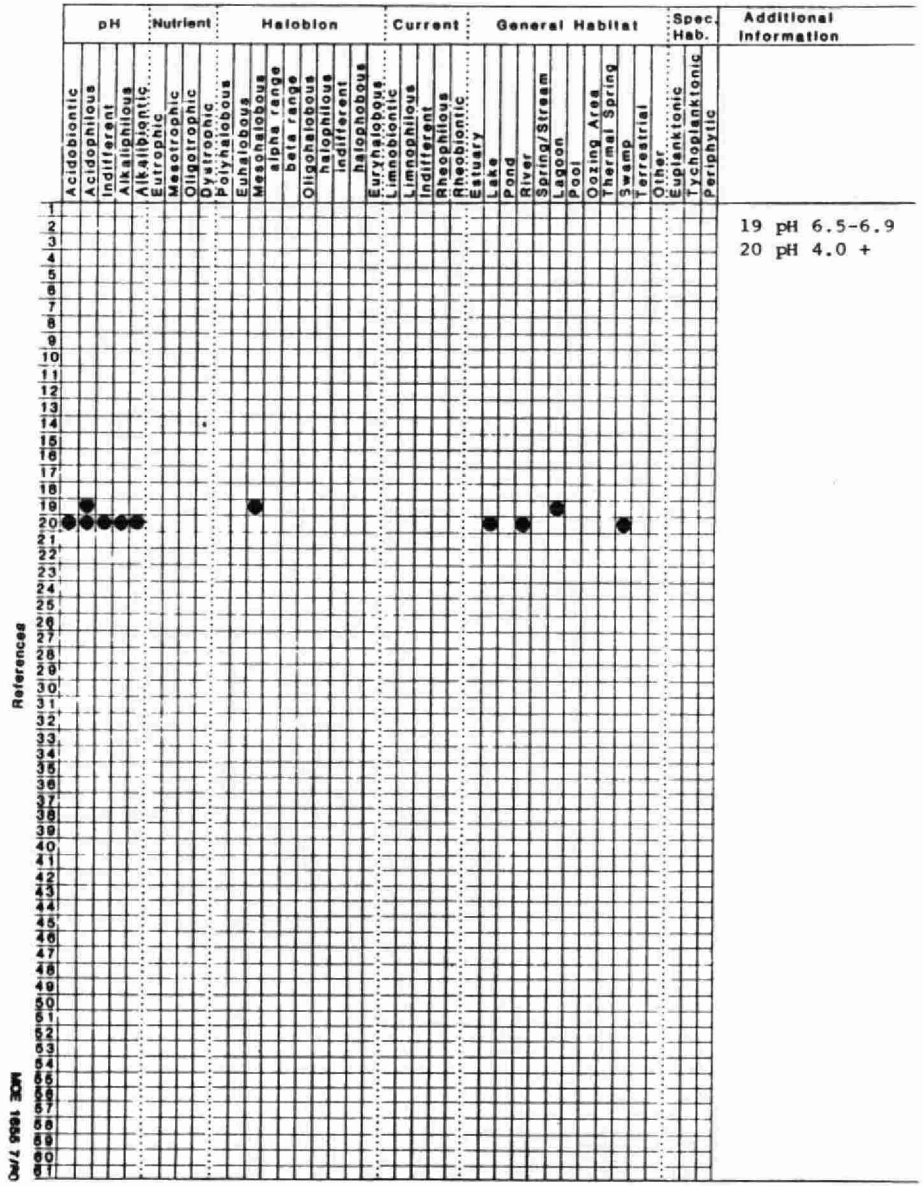
Synonym



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Taxon Mastogloia elliptica (Ag.)Cl. var. elliptica

Synonym



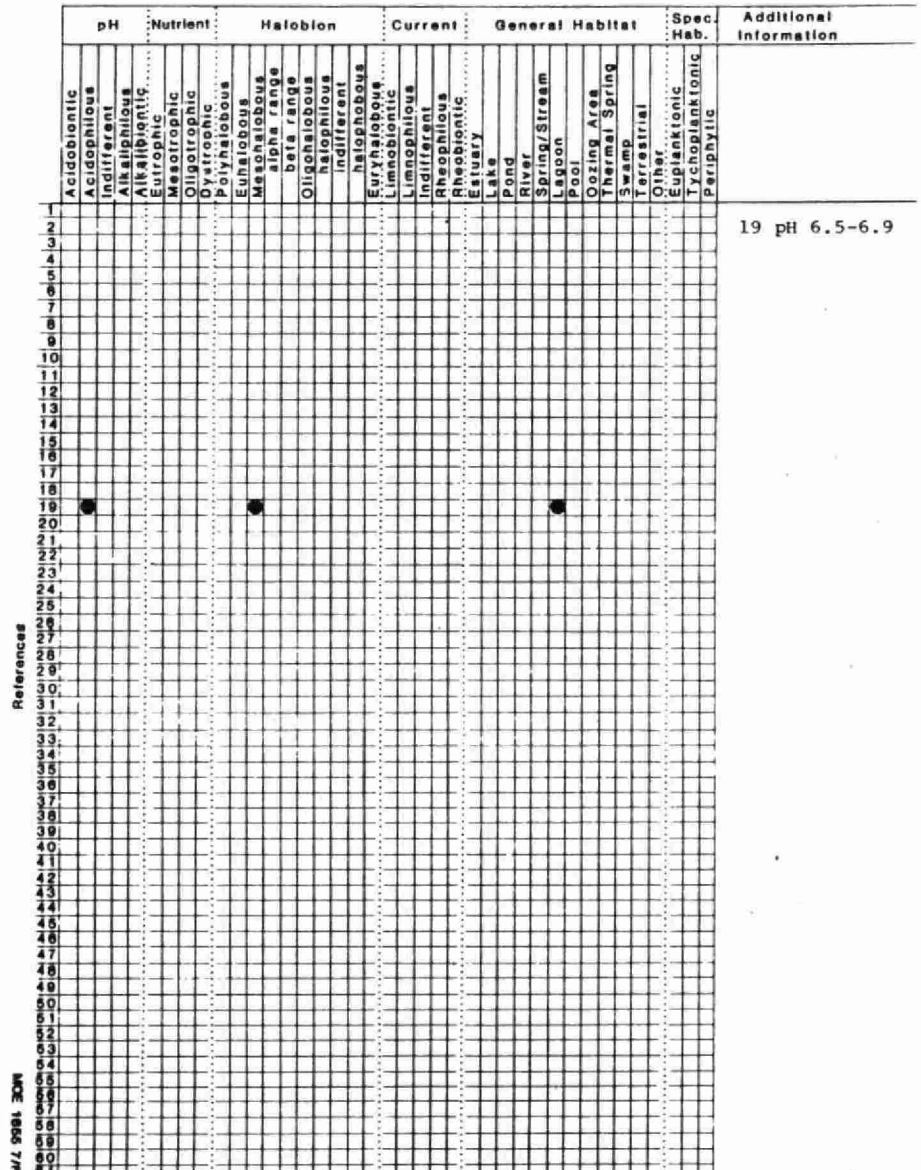
Additional Information

19 pH 6.5-6.9
20 pH 4.0 +

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Taxon Mastogloia exiqua Lewis

Synonym



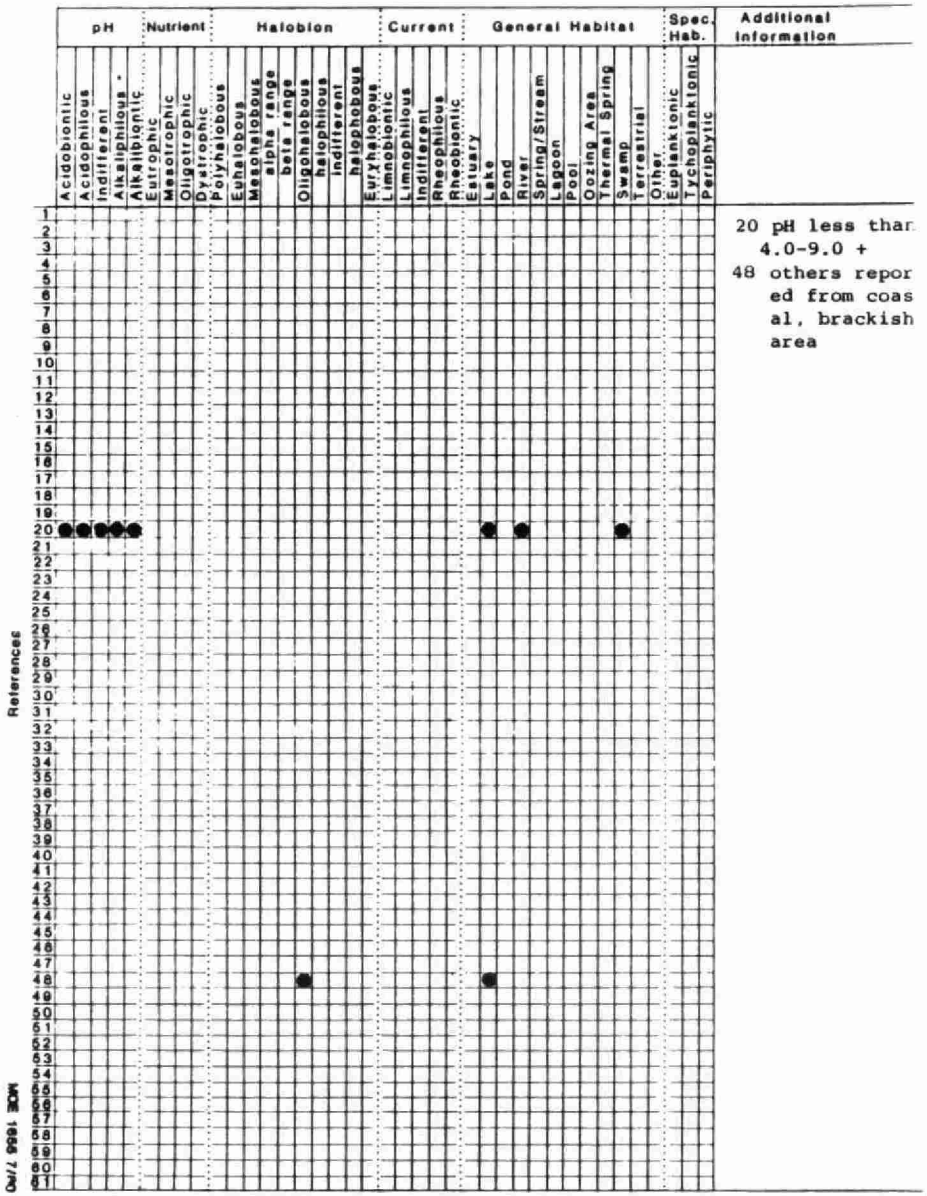
Additional Information

19 pH 6.5-6.9

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Taxon Mastogloia smithii var. amphicephala Grun.

Synonym

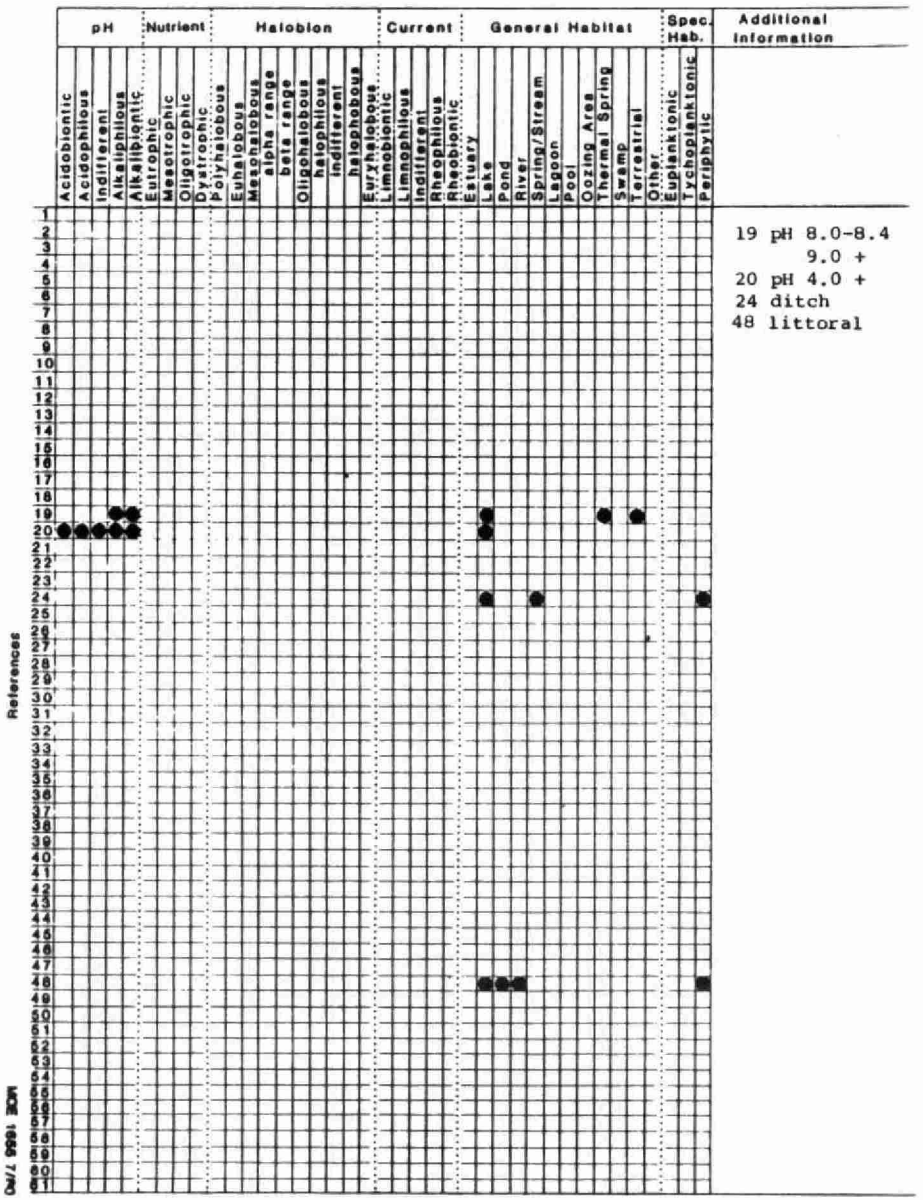


20 pH less than 4.0-9.0 +
48 others reported from coastal, brackish area

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Taxon Mastogloia grevillei W.Sm. var. grevillei

Synonym

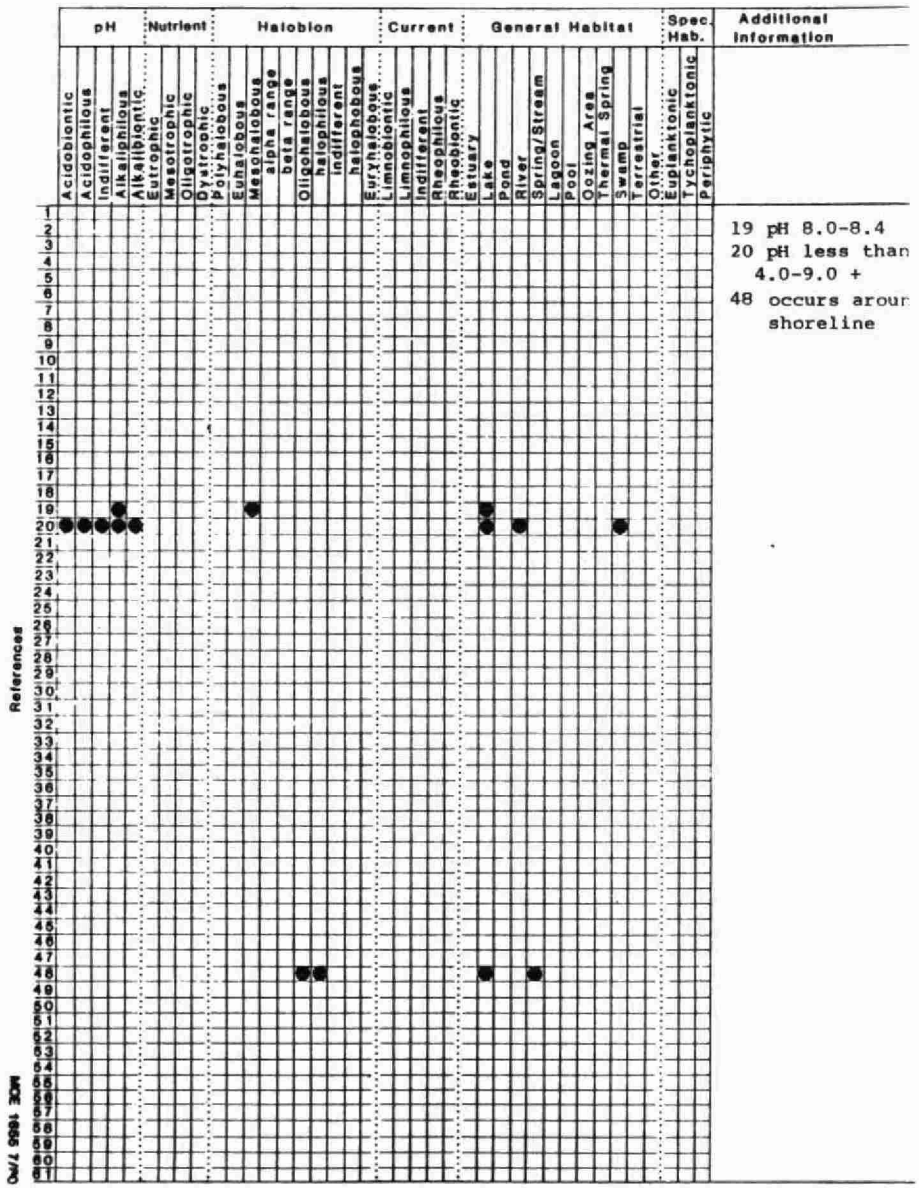


19 pH 8.0-8.4 9.0 +
20 pH 4.0 +
24 ditch
48 littoral

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Taxon Mastogloia smithii var. lacustris Grun.

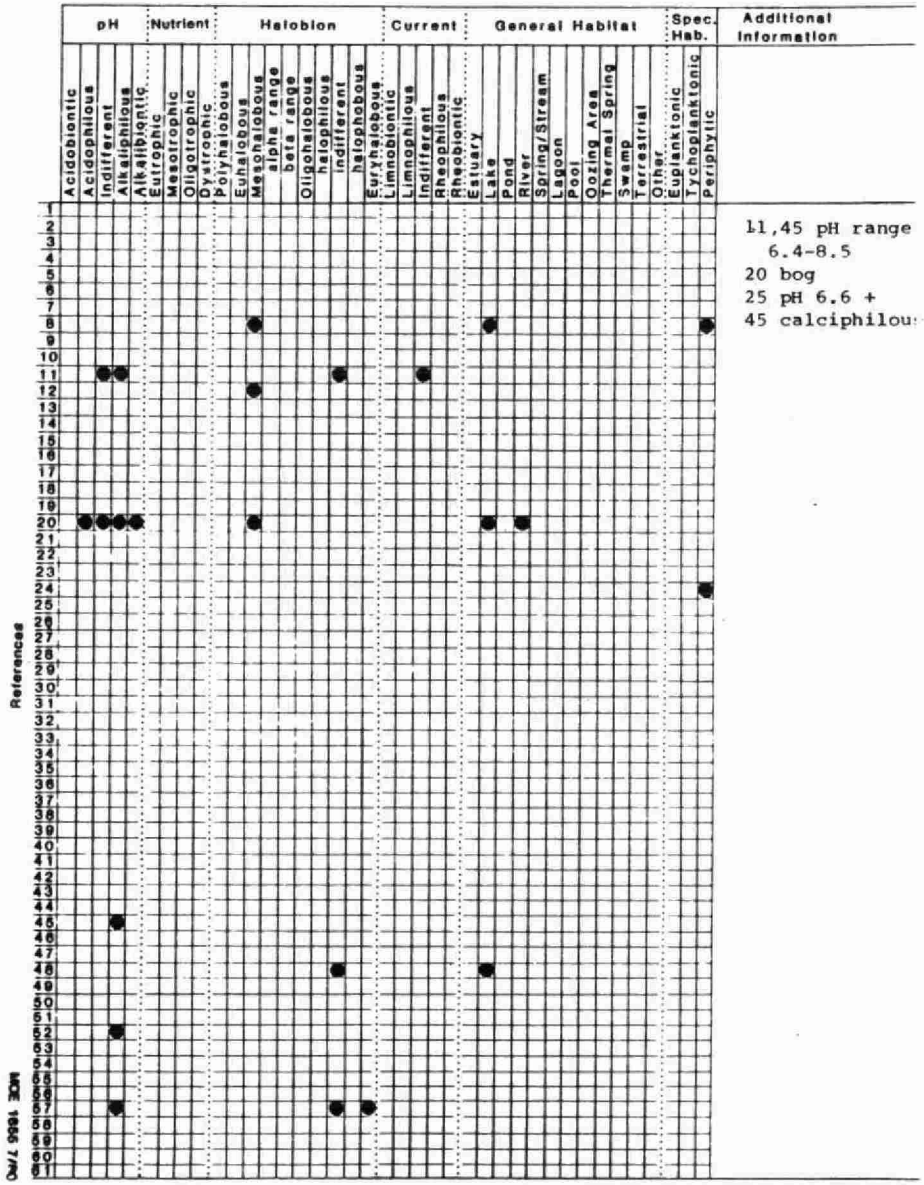
Synonym



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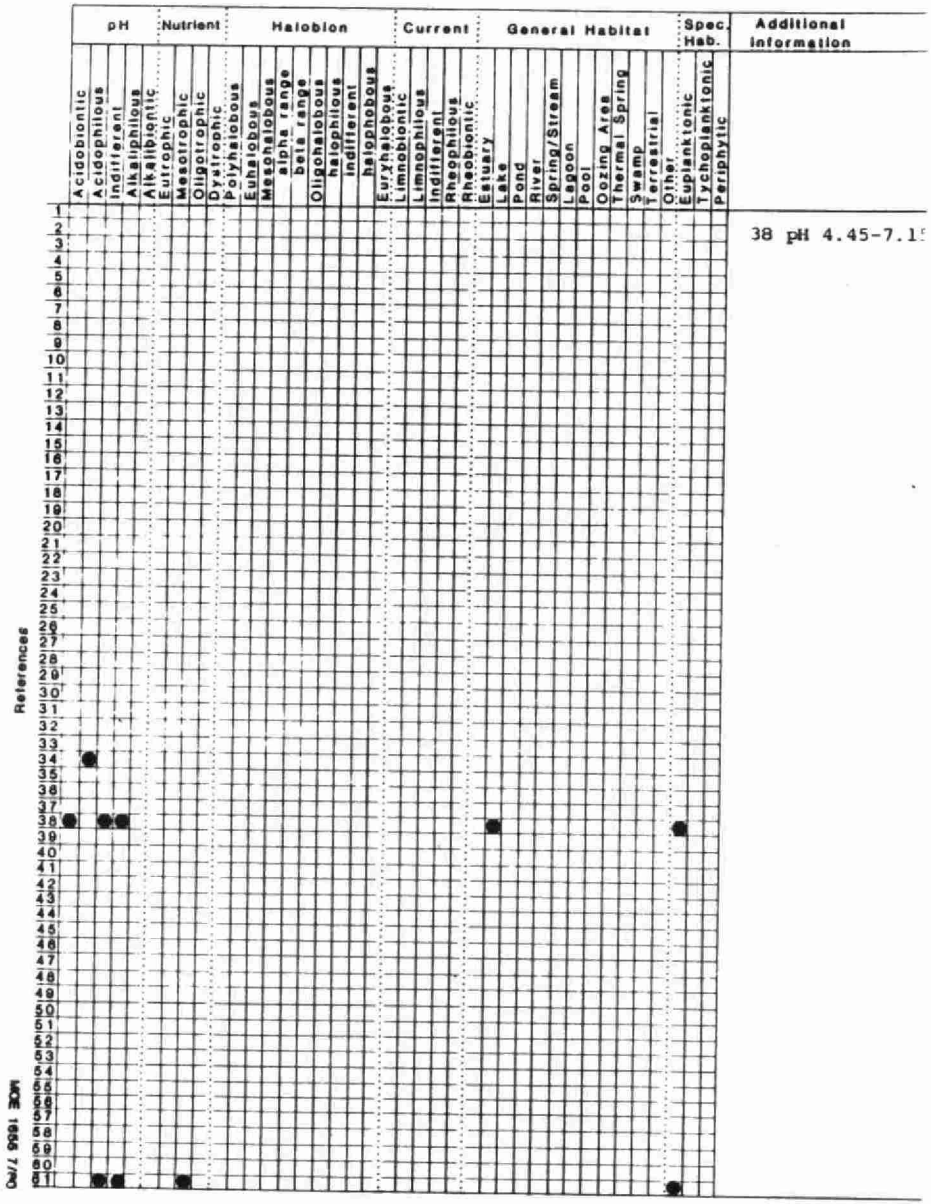
Taxon Mastogloia smithii Thw. ex. W.Sm. var. smithii

Synonym



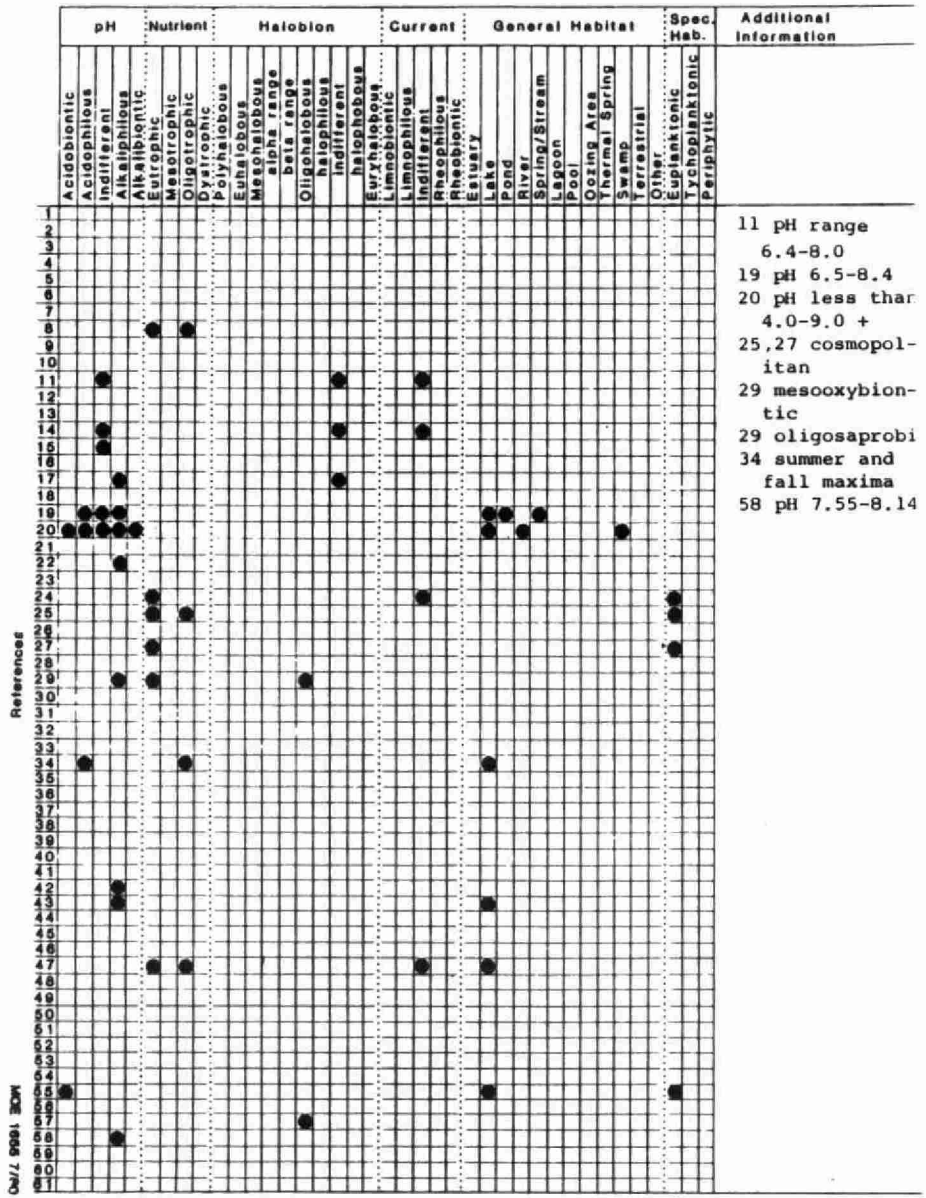
Taxon Melosira sp.

Synonym



Taxon Melosira ambigua (Grun.)O.Mull.

Synonym



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Ontario

Taxon Melosira arenaria Moore

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
19				●																						●	●		●		●								19 pH 8.0-8.4
20	●	●		●	●																					●		●											20 pH 4.0-6.5
																																							7.6 +
50				●																						●											●		
51				●																						●													

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Taxon Melosira distans var. africana O.Mull.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
16		●																●																						

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Taxon Melosira distans var. alpigena Grun.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Melosira distans var. blelhamensis Evans

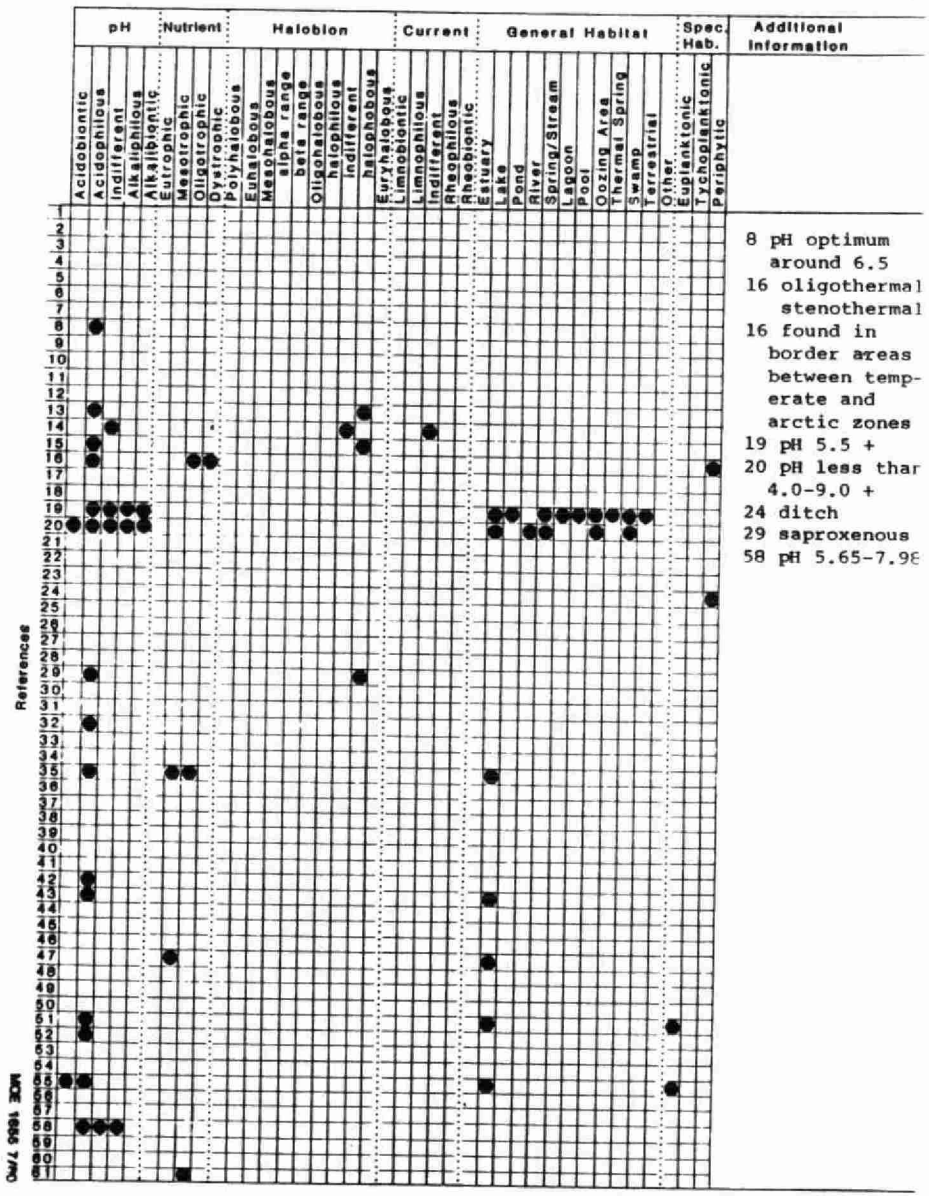
Synonym

References	pH					Nutrient				Halobion										Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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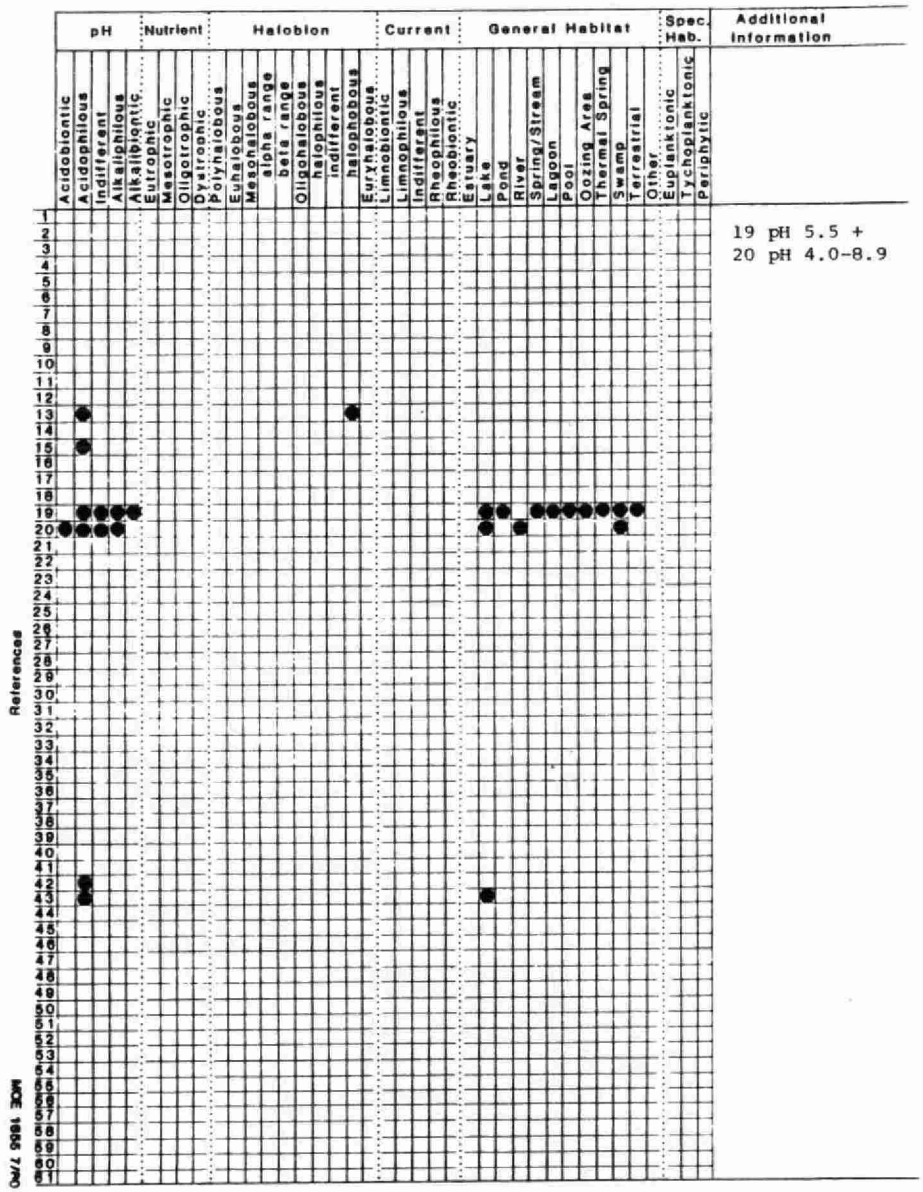
Taxon Melosira distans (Ehr.)Kutz. var. distans

Synonym



Taxon Melosira distans var. lirata (O.Mull.)Bethge

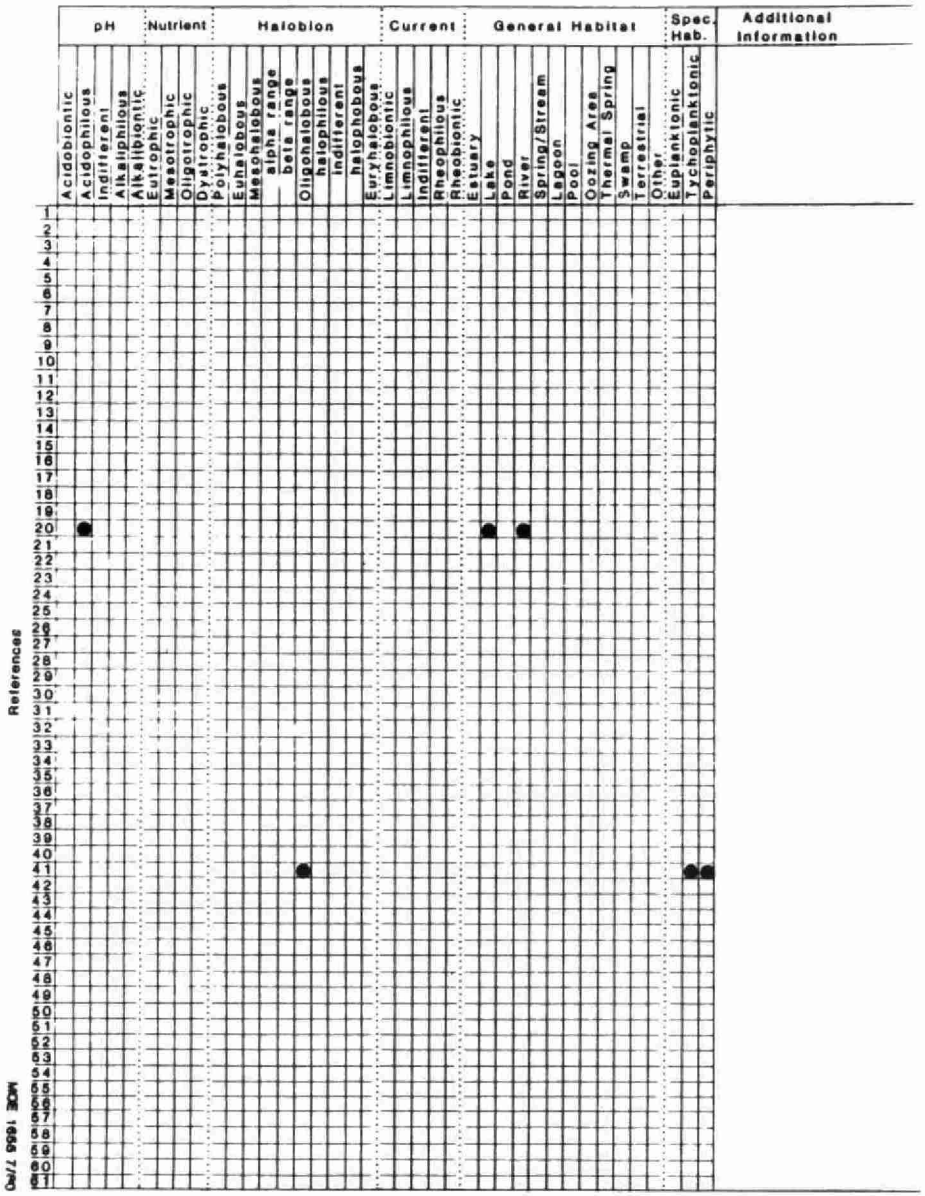
Synonym



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Taxon Melosira distans var. lirata f. lacustris (Grun.)Bethge

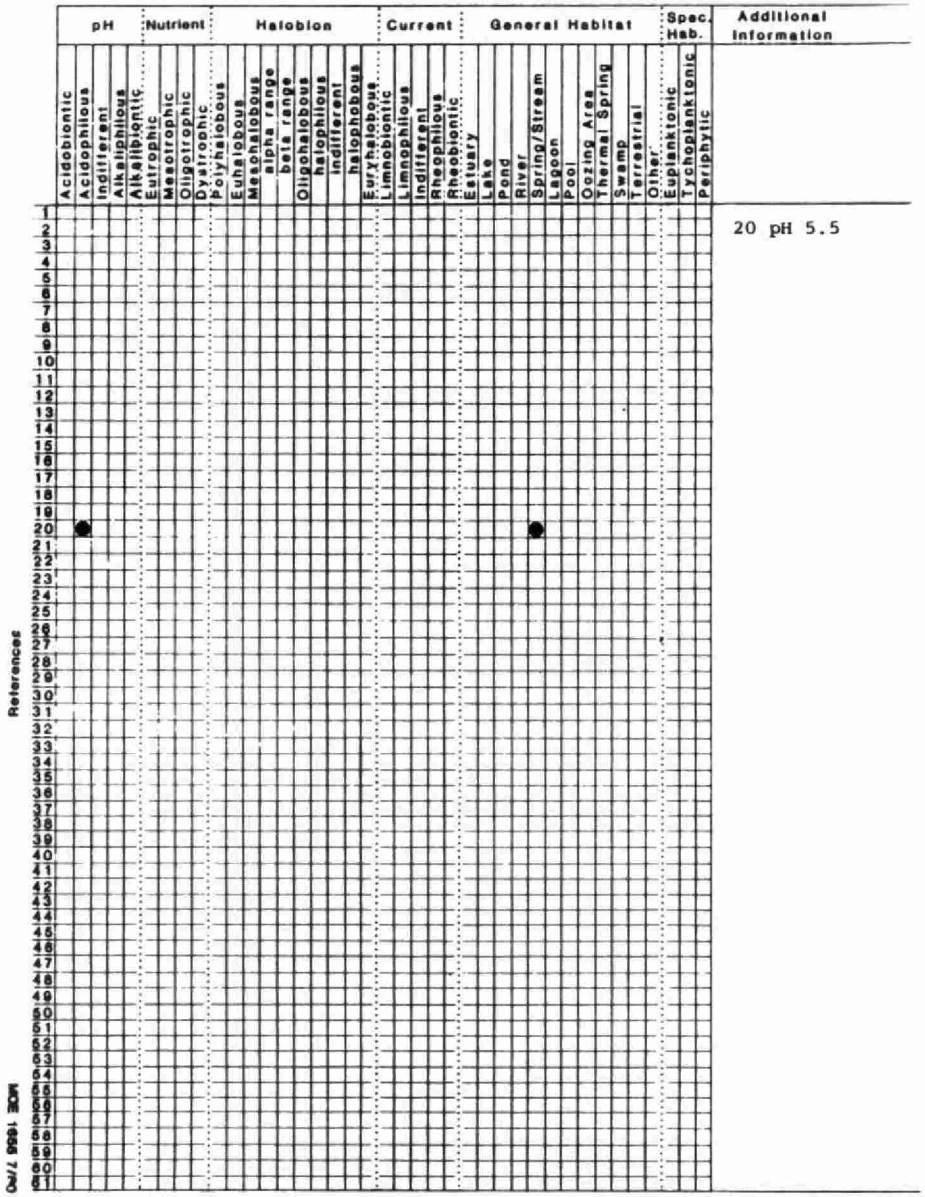
Synonym



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Taxon Melosira distans var. lirata f. seriata (O.Mull.)Hust.

Synonym



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Taxon Melosira distans var. pfaffiana (Reinsch)Grun.

Synonym

References	pH					Nutrient				Halobion									Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Melosira excurrens Nyg.

Synonym

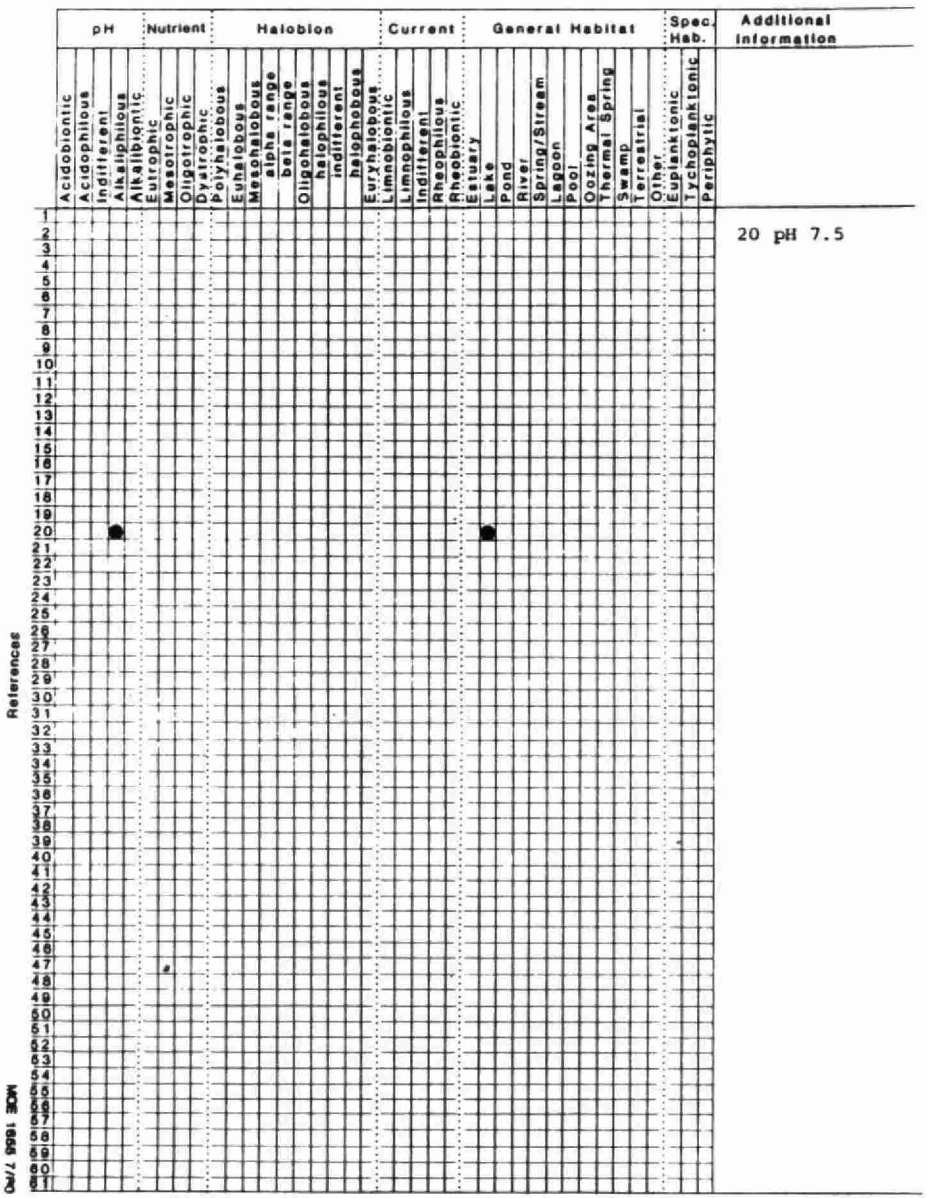
References	pH					Nutrient				Halobion									Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Taxon Melosira fennoscandia Cl.

Synonym

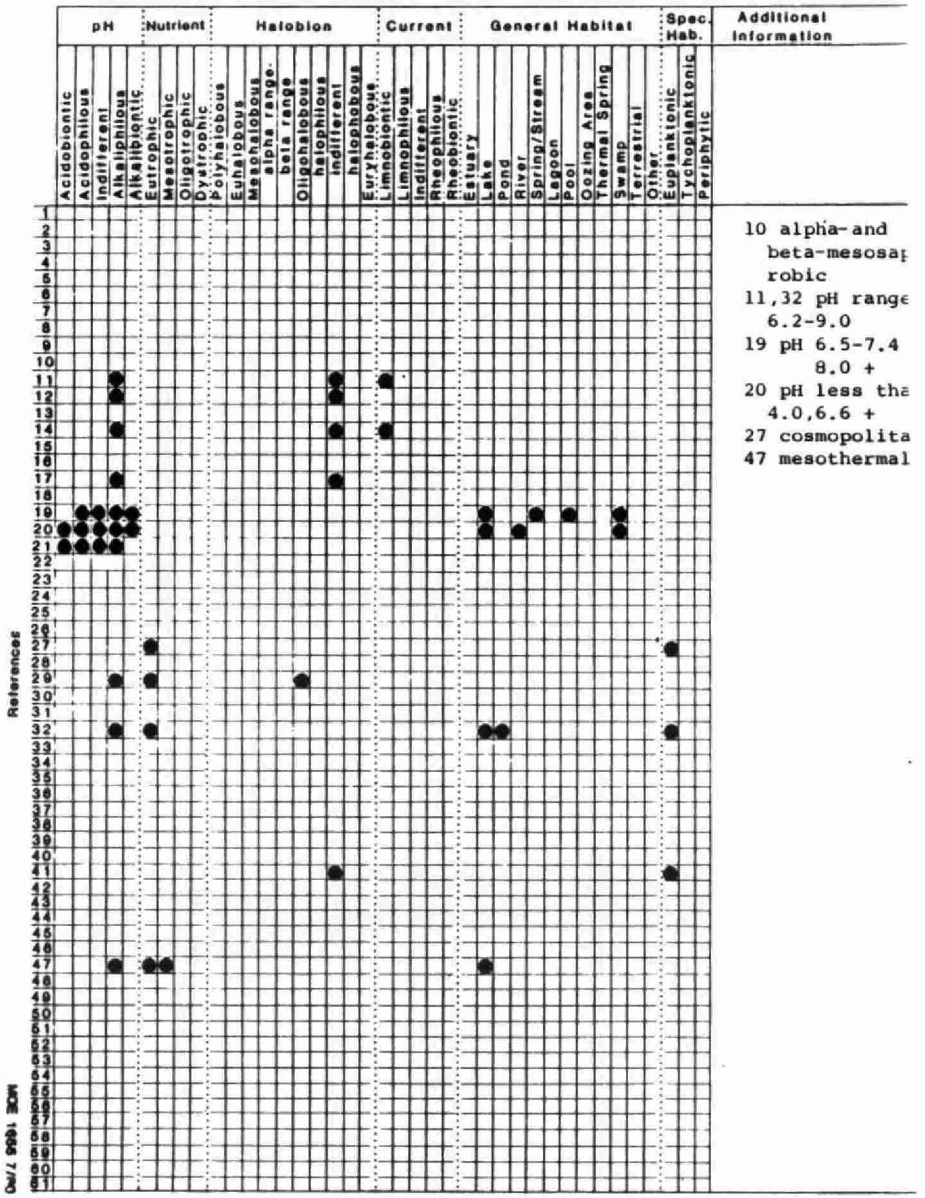


20 pH 7.5

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Taxon Melosira granulata var. angustissima O.Mull.

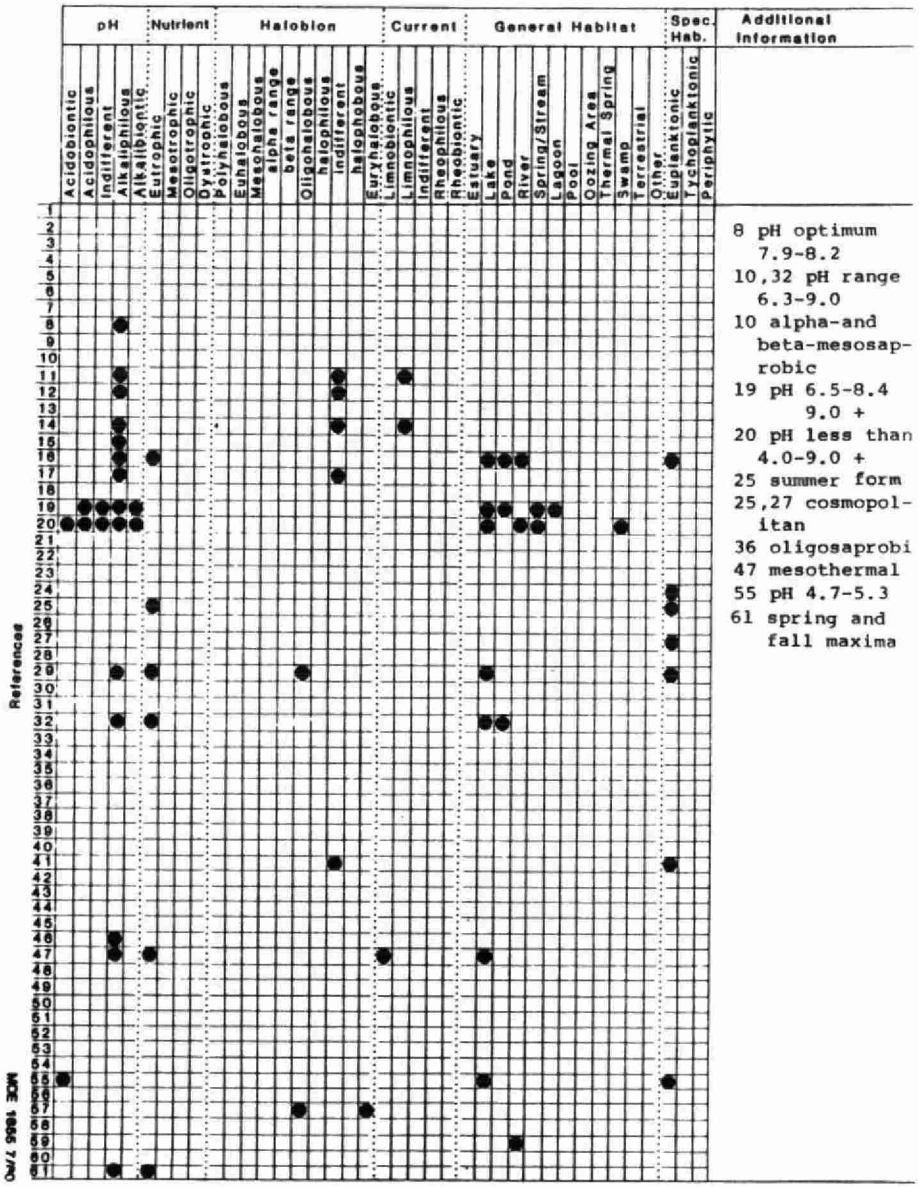
Synonym



10 alpha-and beta-mesosaprobic
11,32 pH range 6.2-9.0
19 pH 6.5-7.4 8.0 +
20 pH less tha 4.0,6.6 +
27 cosmopolita
47 mesothermal

Taxon Melosira granulata (Ehr.)Ralfs var. granulata

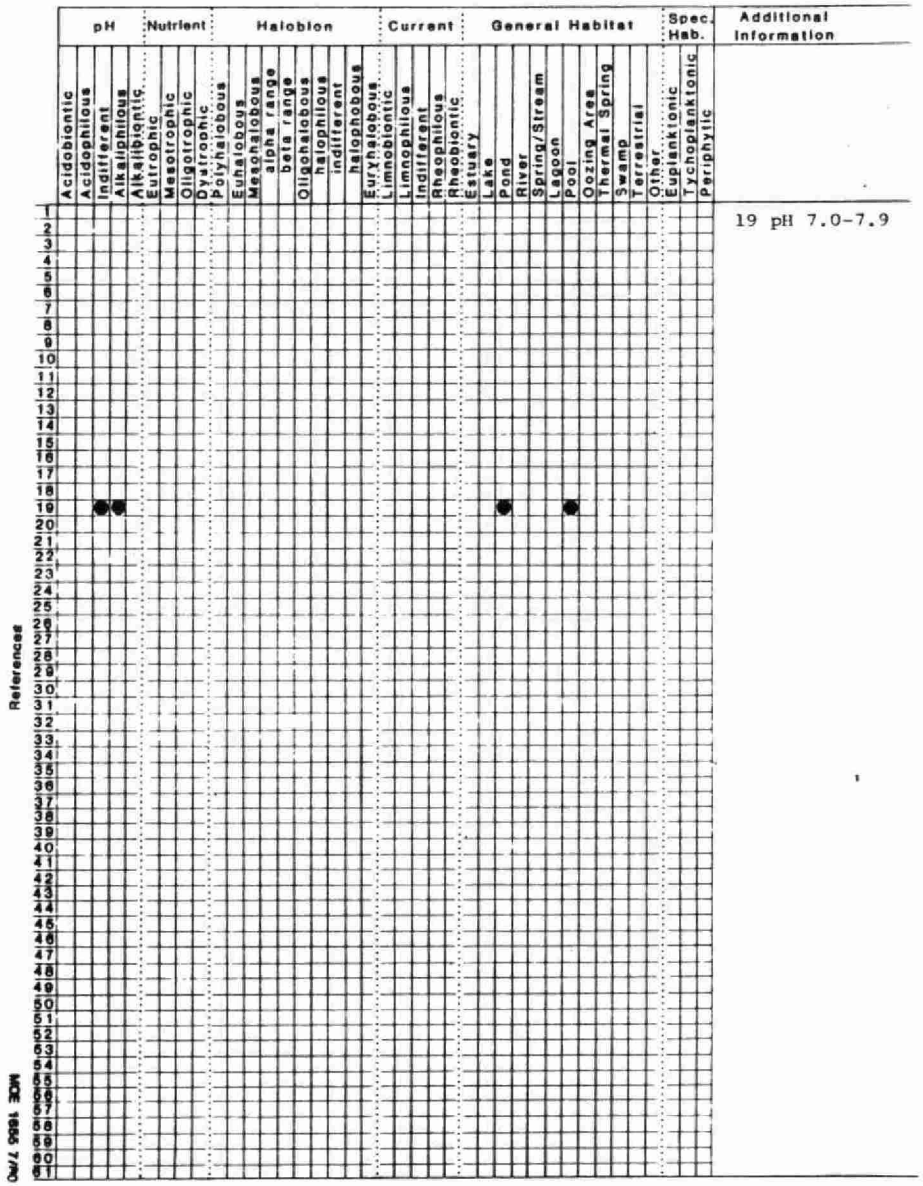
Synonym



8 pH optimum 7.9-8.2
10,32 pH range 6.3-9.0
10 alpha-and beta-mesosaprobic
19 pH 6.5-8.4 9.0 +
20 pH less than 4.0-9.0 +
25 summer form
25,27 cosmopolitan
36 oligosaprobi
47 mesothermal
55 pH 4.7-5.3
61 spring and fall maxima

Taxon Melosira granulata var. muzzanensis (Meist.)Bethge

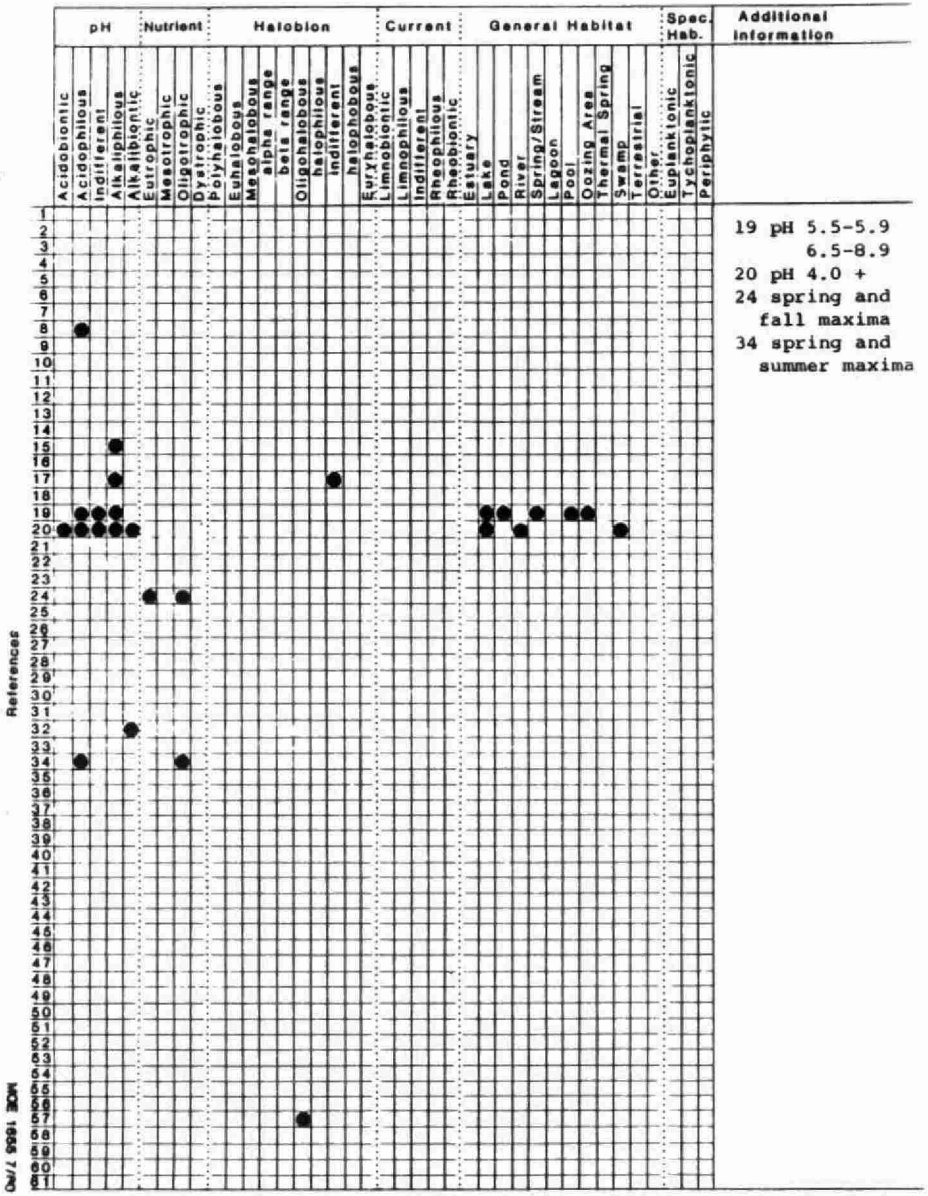
Synonym



19 pH 7.0-7.9

Taxon Melosira islandica O.Mull.

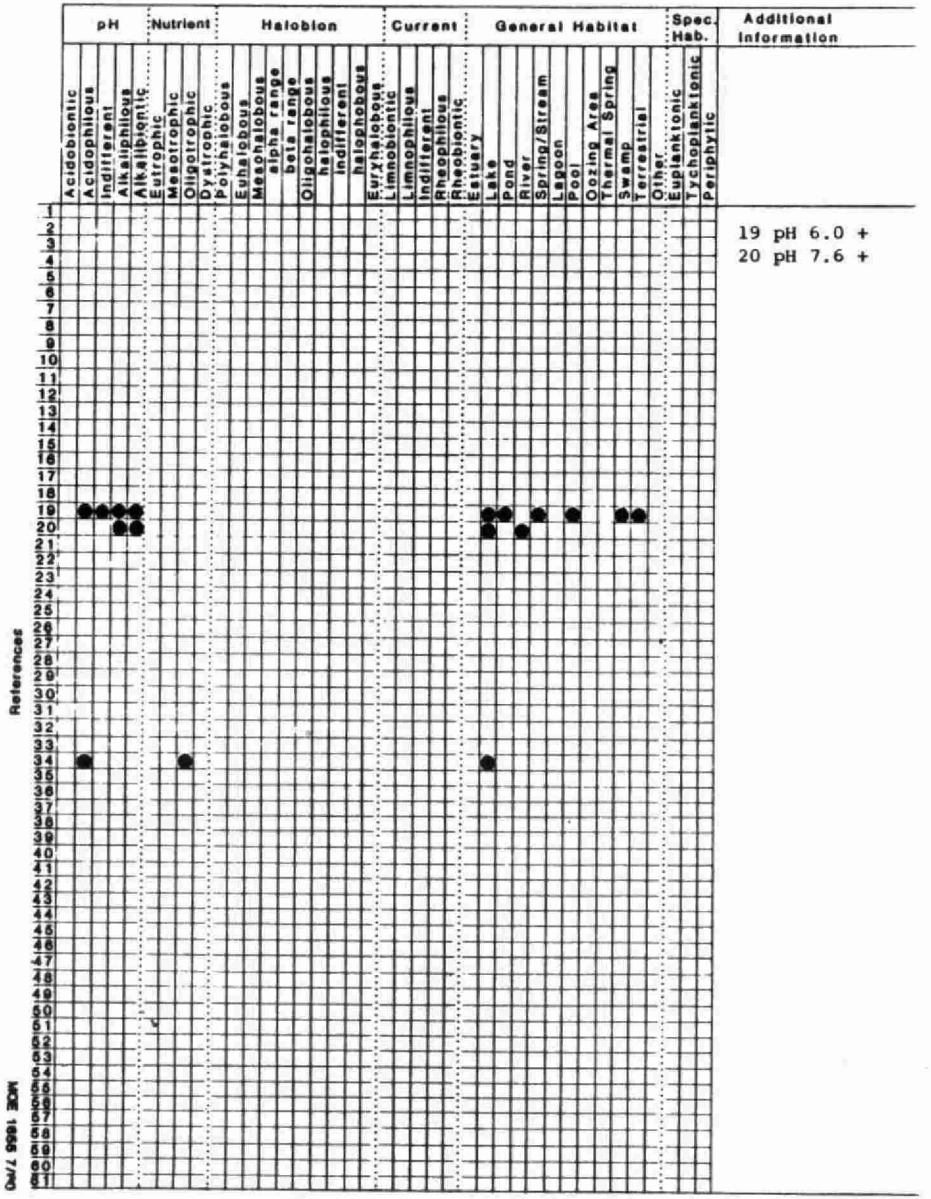
Synonym



19 pH 5.5-5.9
6.5-8.9
20 pH 4.0 +
24 spring and fall maxima
34 spring and summer maxima

Taxon Melosira islandica subsp. helvetica O.Mull.

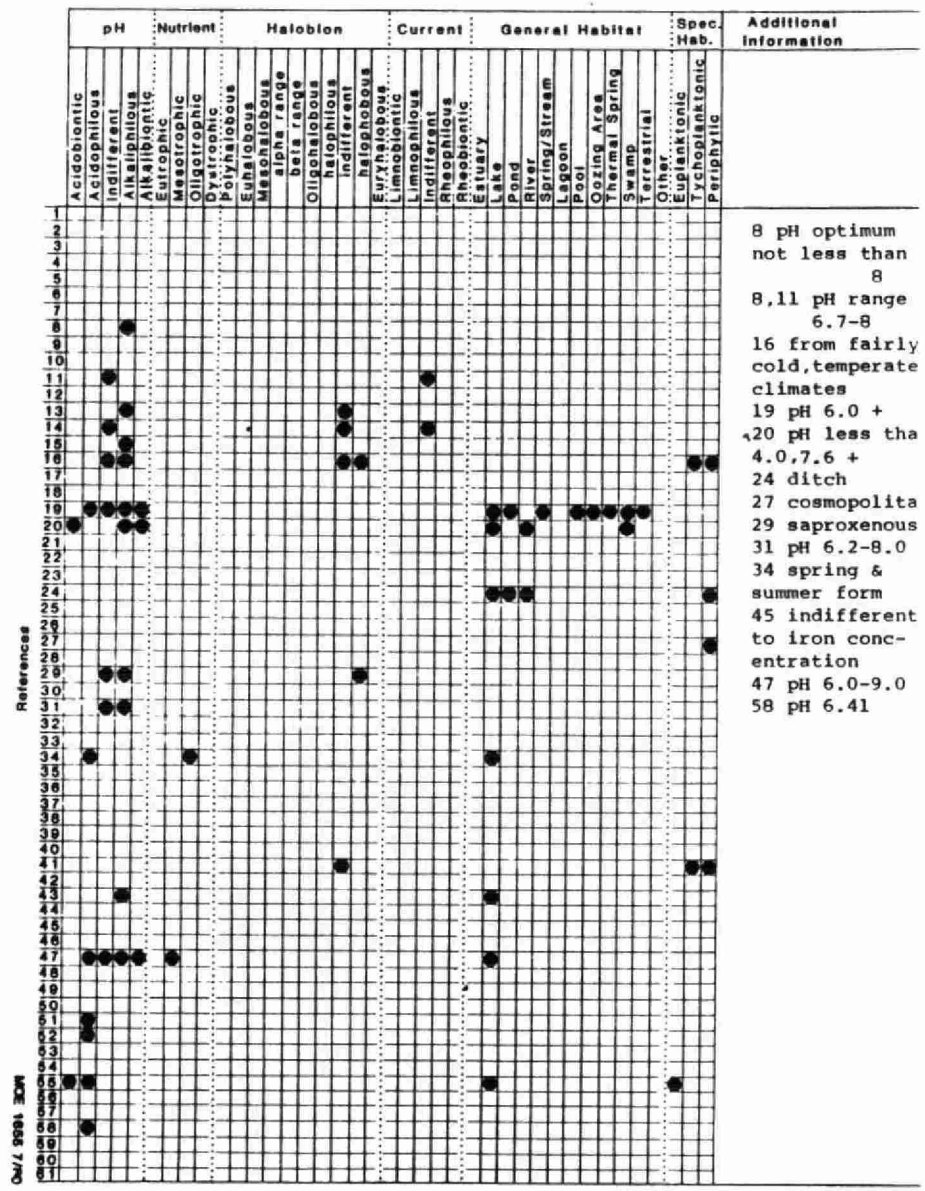
Synonym



19 pH 6.0 +
20 pH 7.6 +

Taxon Melosira italica (Ehr.) Kutz. var. italica

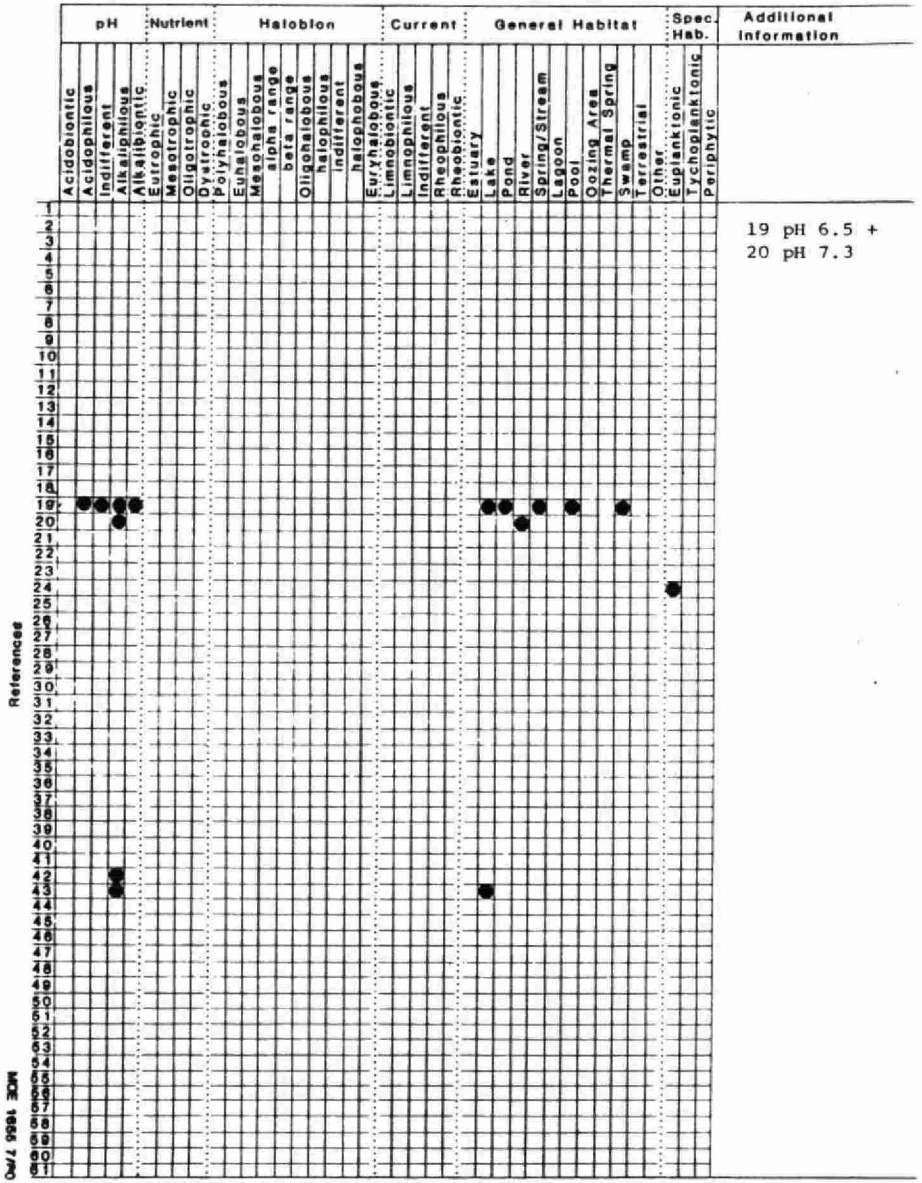
Synonym



8 pH optimum not less than 8
8,11 pH range 6.7-8
16 from fairly cold,temperate climates
19 pH 6.0 +
20 pH less tha 4.0,7.6 +
24 ditch
27 cosmopolita
29 saproxenous
31 pH 6.2-8.0
34 spring & summer form
45 indifferent to iron conc-entration
47 pH 6.0-9.0
58 pH 6.41

Taxon Melosira italica var. valida Grun.

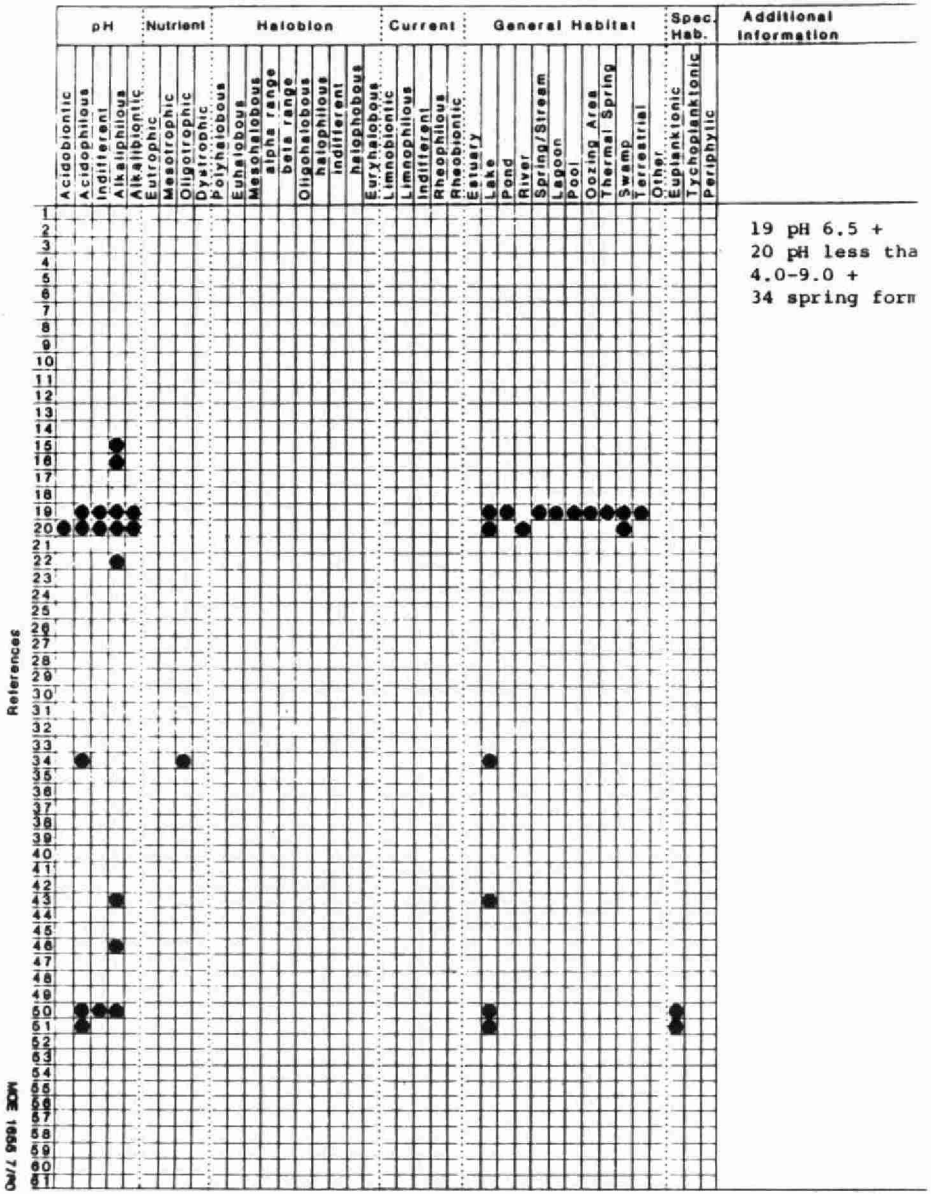
Synonym



19 pH 6.5 +
20 pH 7.3

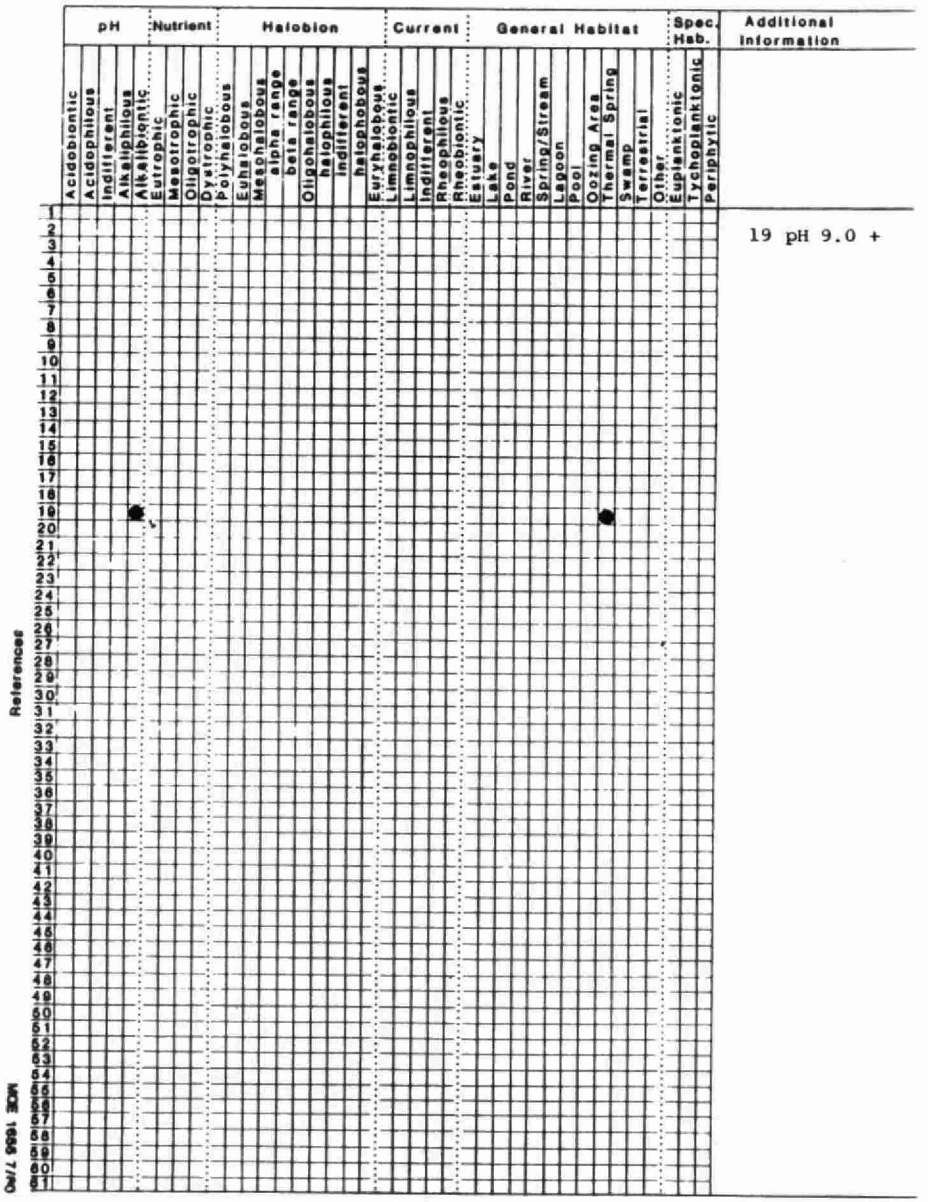
Taxon Melosira italica subsp. subarctica O. Mull.

Synonym



Taxon Melosira italica ssp. subarctica f. curvata vel. spiralis

Synonym (Hust.)?



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Ontario

Taxon Melosira juergensii Ag. var. juergensii

Synonym

References	pH					Nutrient					Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Melosira mikkelsenii Nyg.

Synonym

References	pH					Nutrient					Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Melosira nummuloides (Dillw.) Ag.

Synonym

References	pH					Nutrient				Halobion									Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ontario

Taxon Melosira pfaffiana Reinsch

Synonym

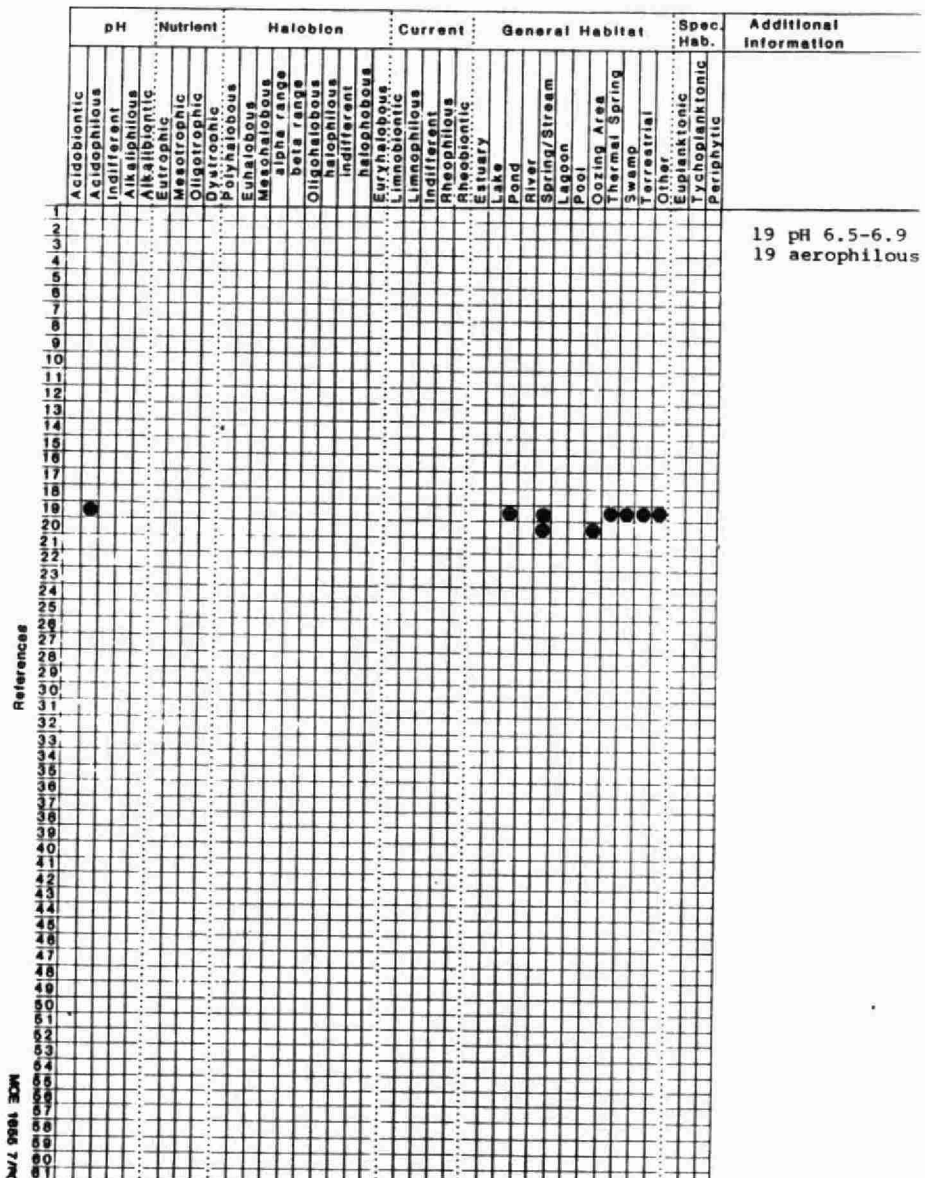
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Taxon Melosira roeseana Rabe. var. roeseana

Synonym

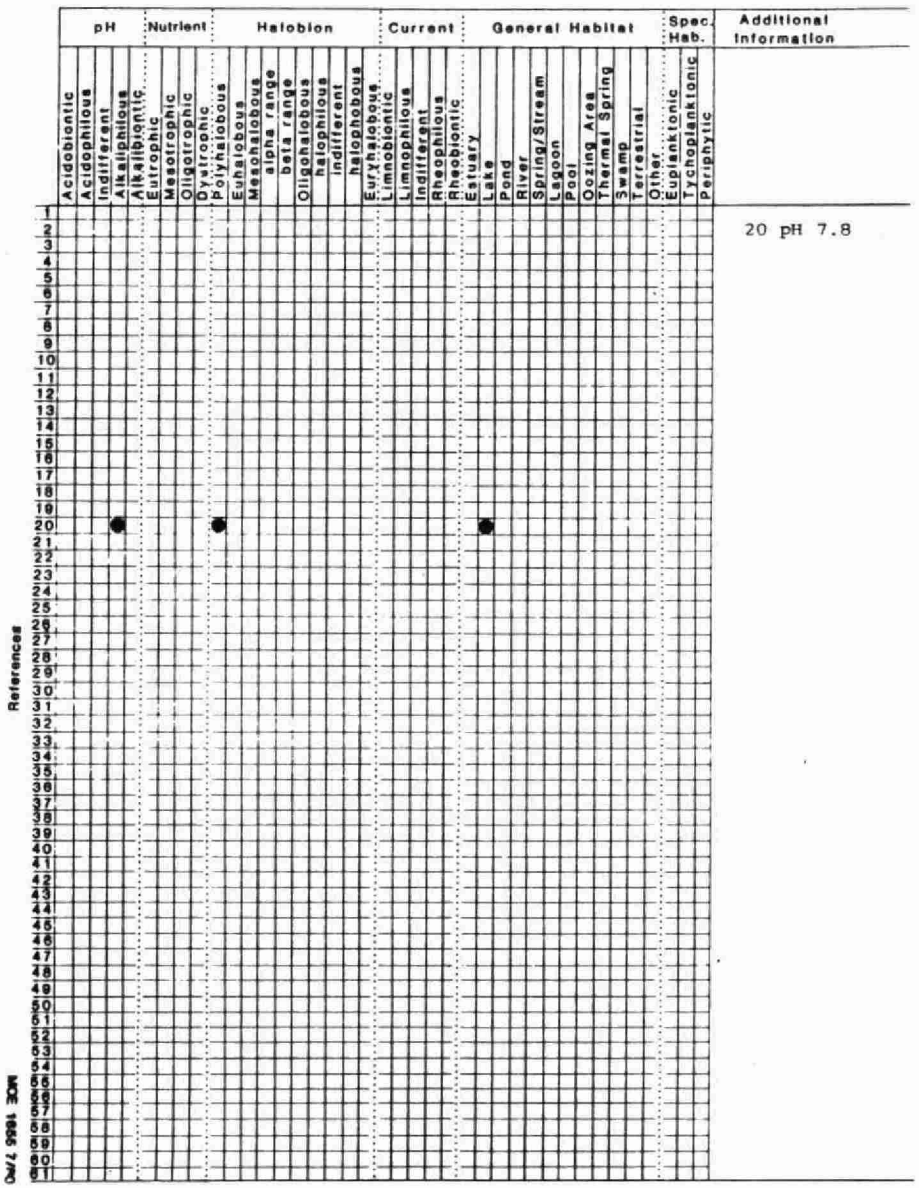


19 pH 6.5-6.9
19 aerophilous

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Taxon Melosira sulcata (Ehr.) Kutz. var. sulcata

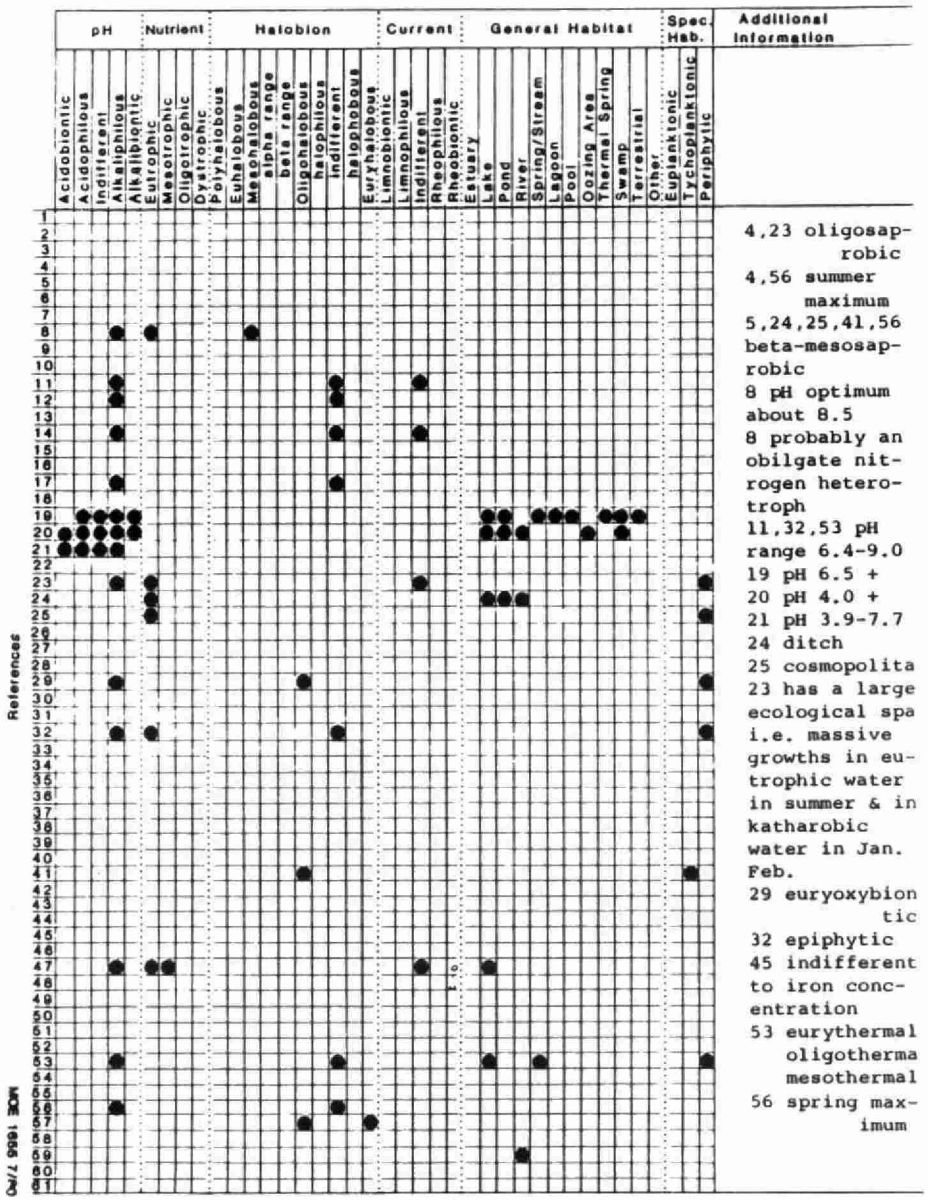
Synonym



20 pH 7.8

Taxon Melosira varians Ag.

Synonym

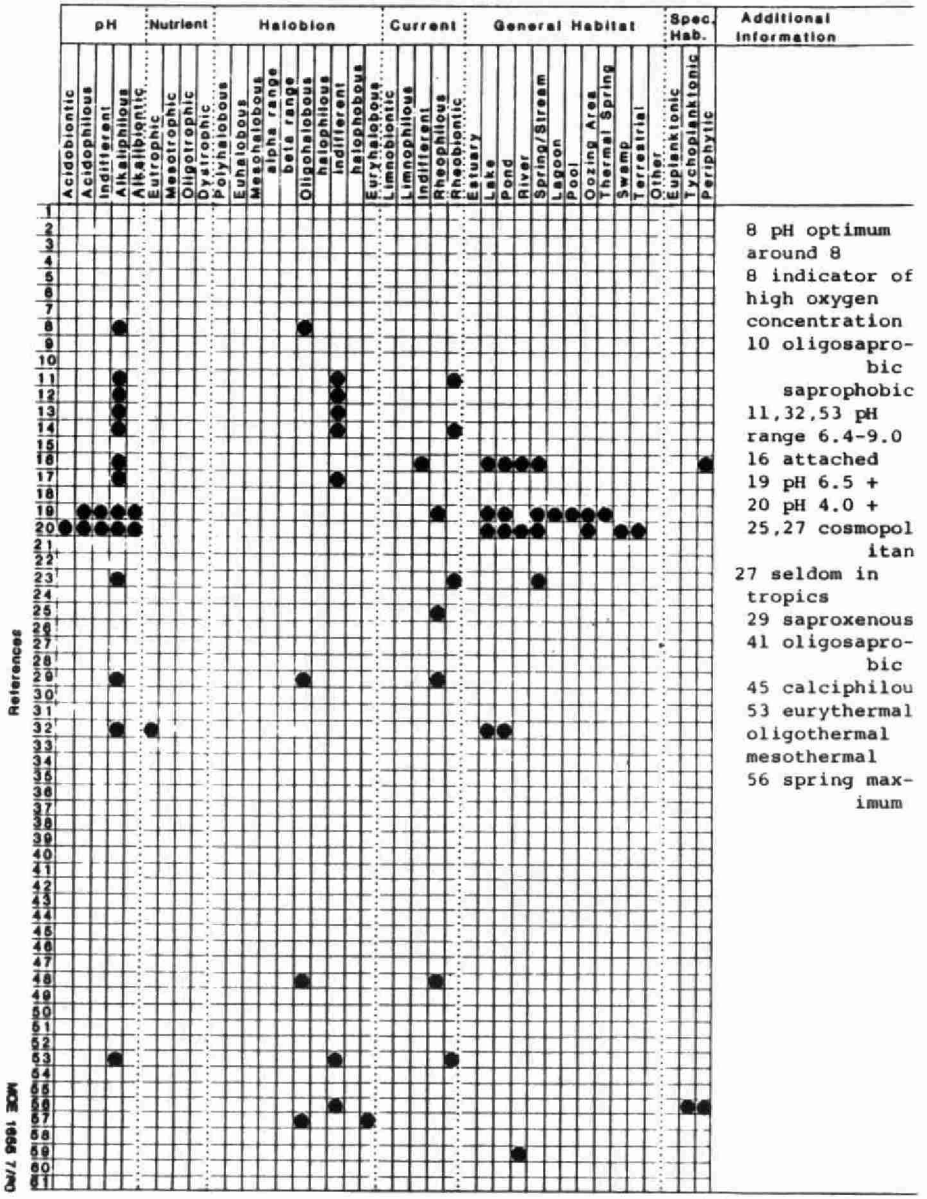


4,23 oligosaprobic
4,56 summer maximum
5,24,25,41,56 beta-mesosaprobic
8 pH optimum about 8.5
8 probably an obilgate nitrogen heterotroph
11,32,53 pH range 6.4-9.0
19 pH 6.5 +
20 pH 4.0 +
21 pH 3.9-7.7
24 ditch
25 cosmopolita
23 has a large ecological spa i.e. massive growths in eutrophic water in summer & in katharobic water in Jan. Feb.
29 euryoxybiontic
32 epiphytic
45 indifferent to iron concentration
53 eurythermal oligothermal mesothermal
56 spring maximum

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Taxon Meridion circulare (Grev.) Ag. var. circulare

Synonym Meridion circulare var. zinkenii (Kutz.) Grun.

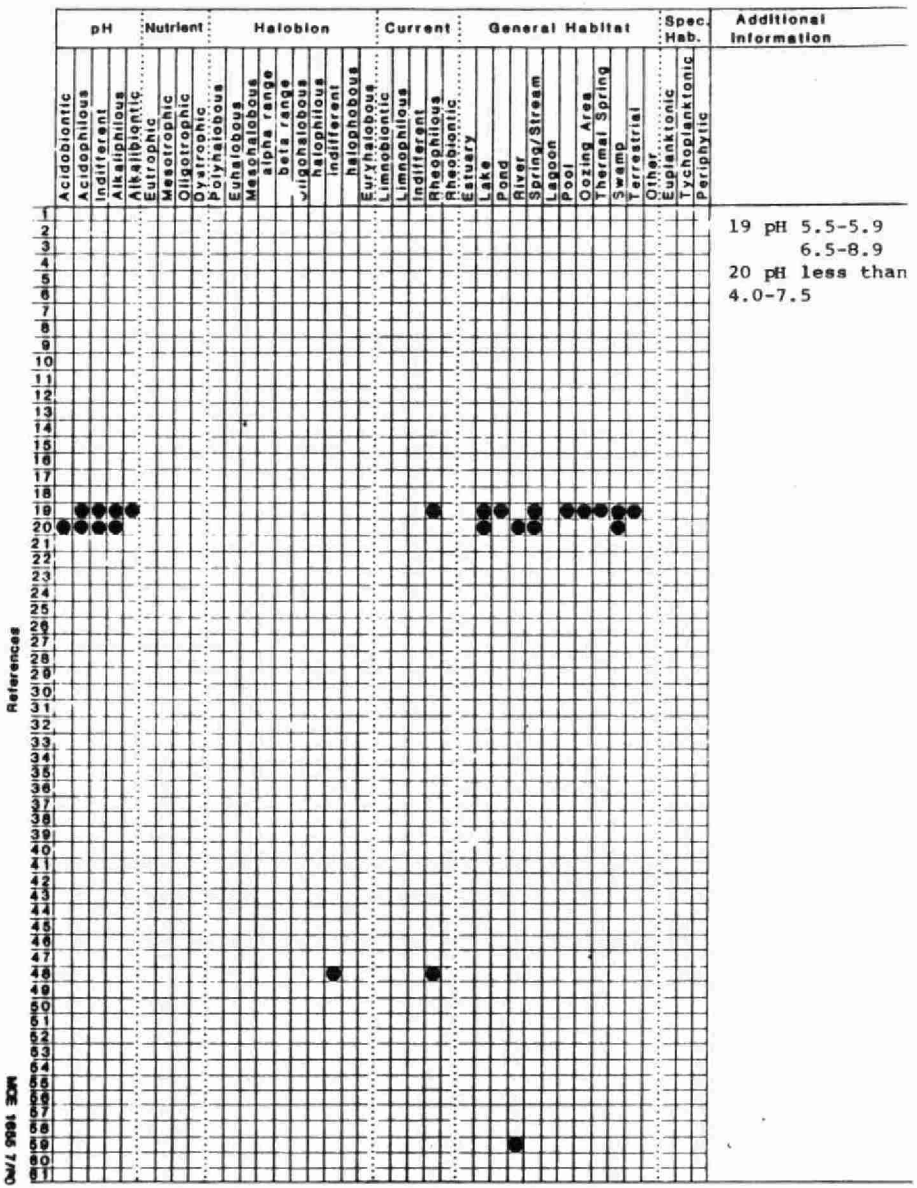


8 pH optimum around 8
8 indicator of high oxygen concentration
10 oligosaprobic saprophobic
11,32,53 pH range 6.4-9.0
16 attached
19 pH 6.5 +
20 pH 4.0 +
25,27 cosmopolitan
27 seldom in tropics
29 saproxenous
41 oligosaprobic
45 calciphilou
53 eurythermal oligothermal mesothermal
56 spring maximum

Ministry of the Environment
Ontario

Taxon Meridion circulare var. constrictum (Ralfs) V.Heurck

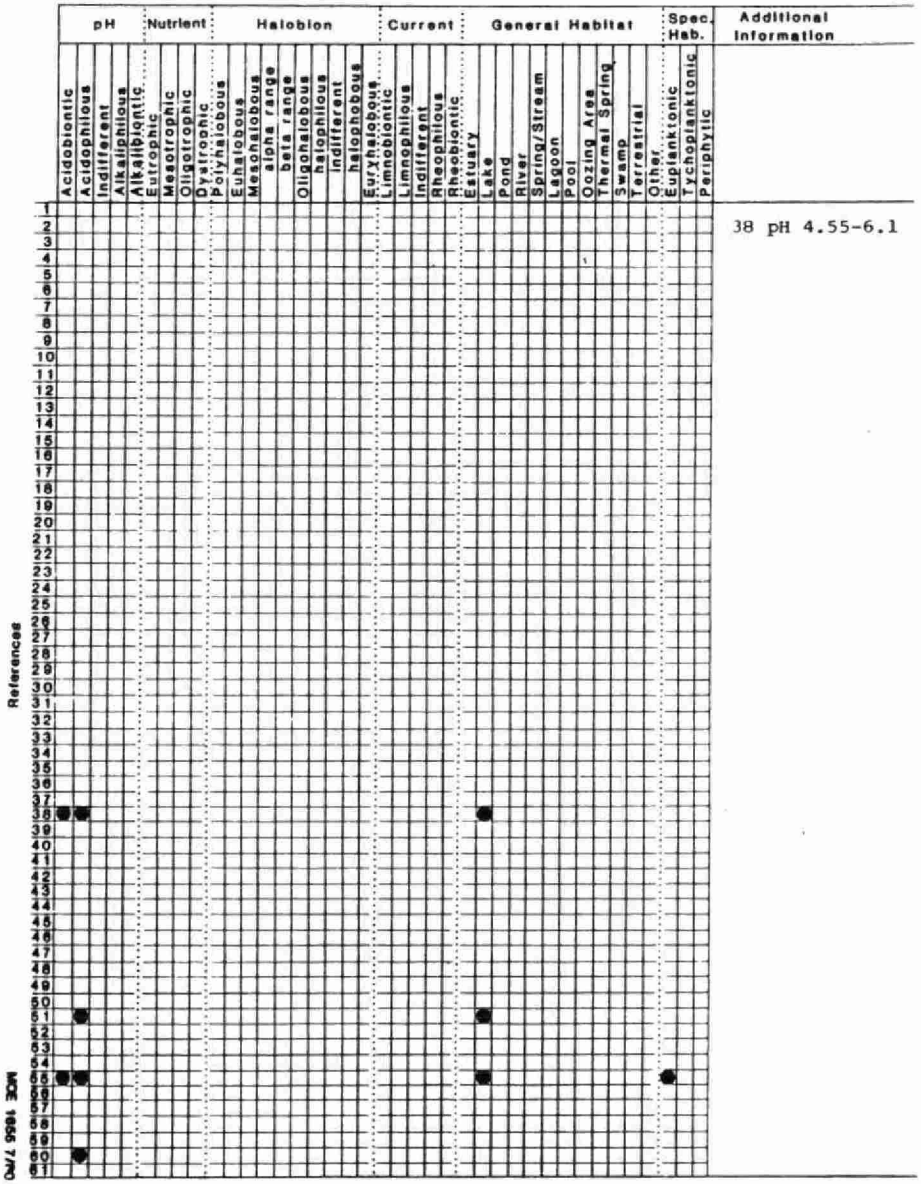
Synonym



Ministry of the Environment
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Taxon Navicula sp.

Synonym



Ministry of the Environment
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Taxon Navicula abiskoensis Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula absoluta Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula accomoda Hust.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic
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8 probably an obligate nitrog heterotroph
29 polysaprobic
29 euryoxybiont
33 other sewage treatment plant ponds & trickli filters
33 polysaprobic to mesosaprobic
48 grows well in the presence of organic pollution

MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Navicula americana Ehr.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic
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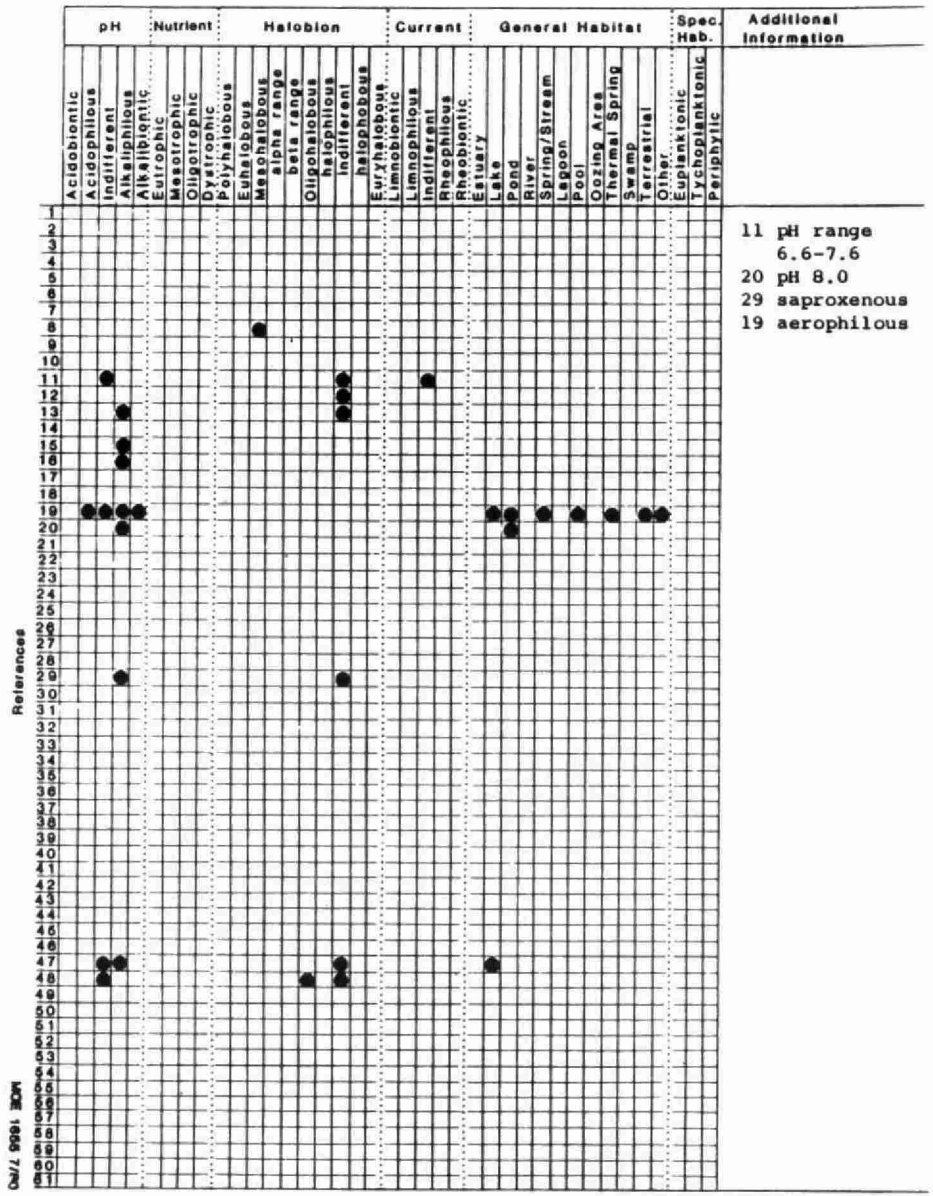
8 pH optimum around 7.5
25 cosmopolitan
25,32 pH range 5.5-8.0
29 saproxenous

MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Navicula amphibola Cl.

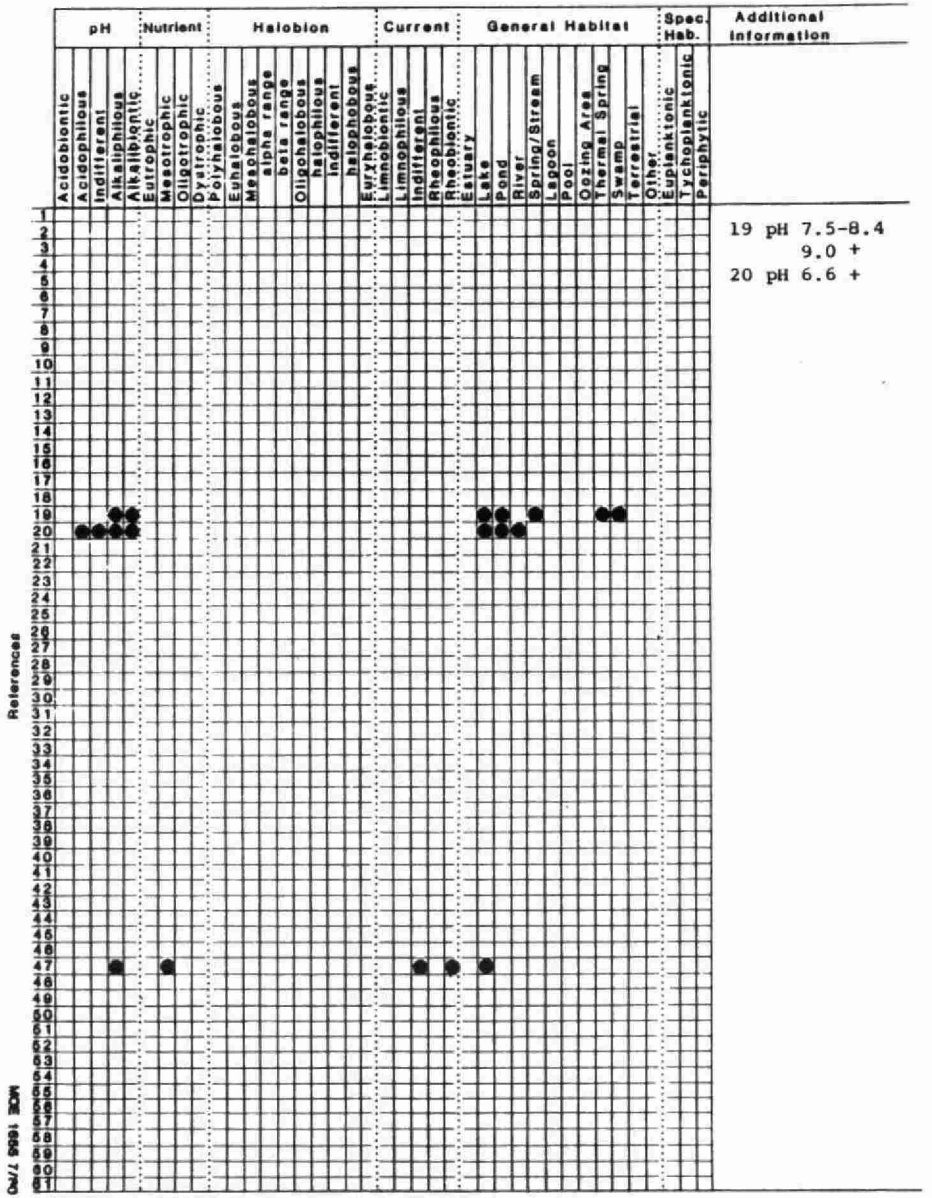
Synonym



Ministry of the Environment
Ontario

Taxon Navicula anglica Ralfs var. anglica

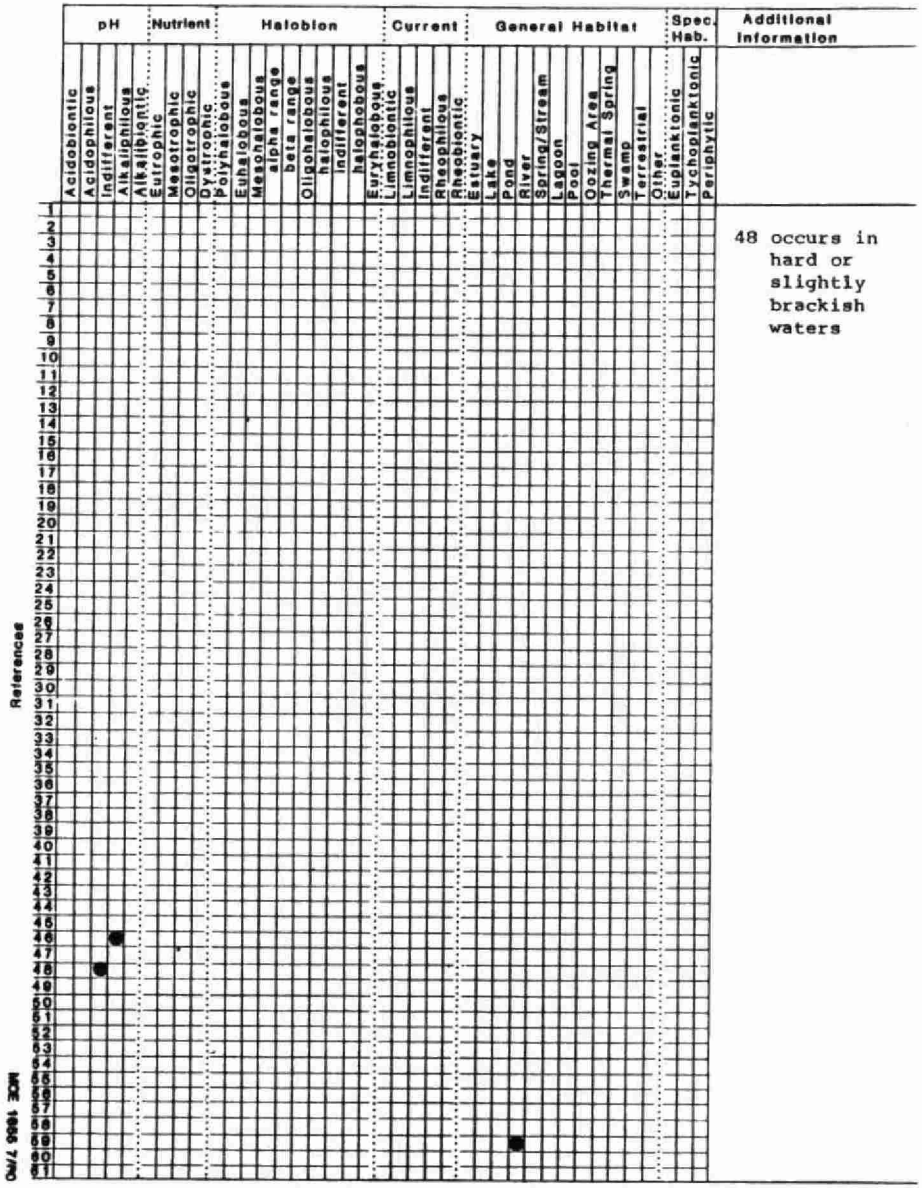
Synonym



Ministry of the Environment
Ontario

Taxon Navicula anglica var. subsalsa(Grun.) Cl.

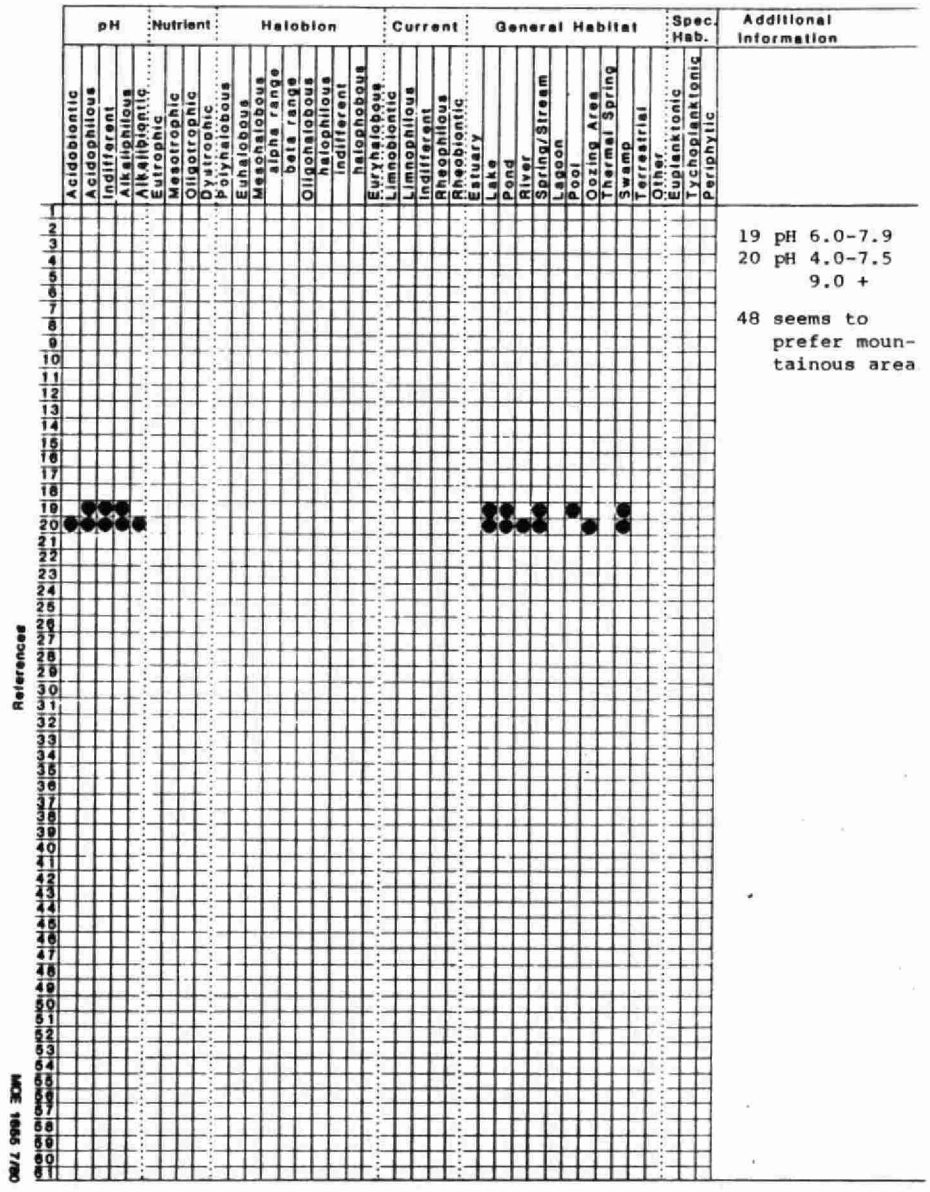
Synonym Navicula anglica var. subsalina Grun.



48 occurs in hard or slightly brackish waters

Taxon Navicula angusta Grun.

Synonym Navicula cari var. angusta (Grun.) Cl.-Eul.



19 pH 6.0-7.9
20 pH 4.0-7.5
9.0 +

48 seems to prefer mountainous area

Ministry of the Environment
Ontario

Taxon Navicula atomus (Kutz.) Grun.

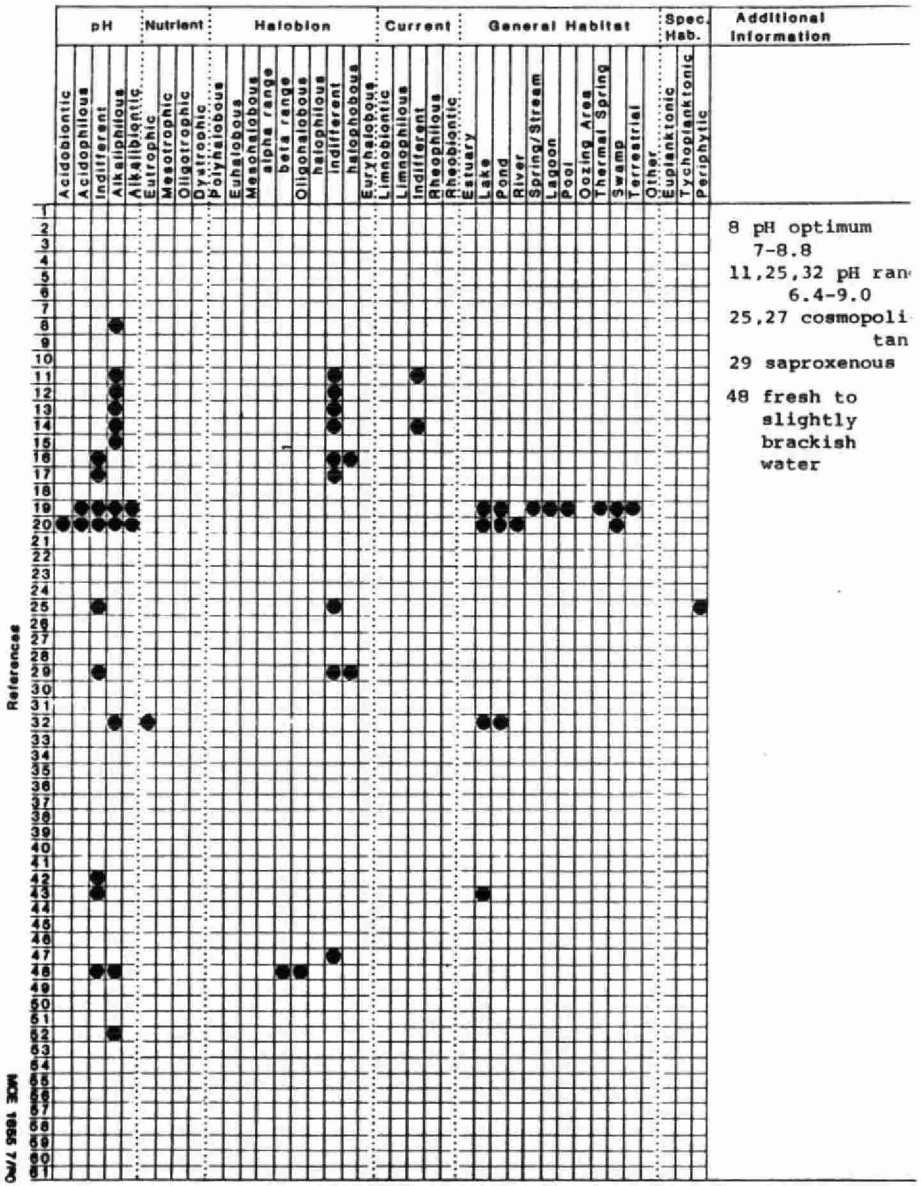
Synonym

pH					Nutrient				Halobion									Current					General Habitat									Spec. Hab.			Additional information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	Halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						48 widely distributed, often in wat with fairly high nutrien level

Ministry of the Environment
Ontario

Taxon Navicula bacillum Ehr. var. bacillum

Synonym



8 pH optimum 7-8.8

11,25,32 pH ran 6.4-9.0

25,27 cosmopoli tan

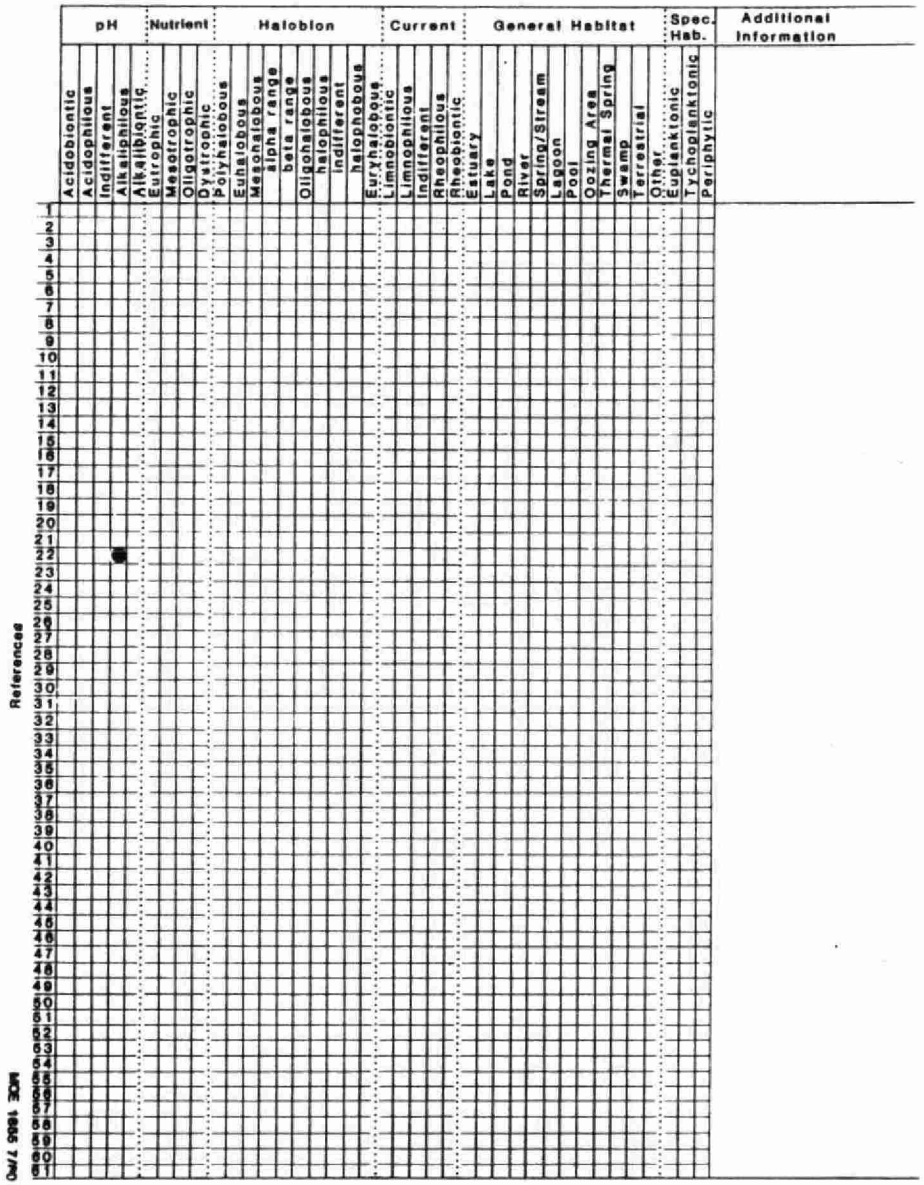
29 saproxenous

48 fresh to slightly brackish water

Ministry of the Environment
Ontario

Taxon Navicula bacillum var. gregoryana Grun.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula biconica Patr.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Halobion: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Navicula bicontracta sensu Hust.

Synonym

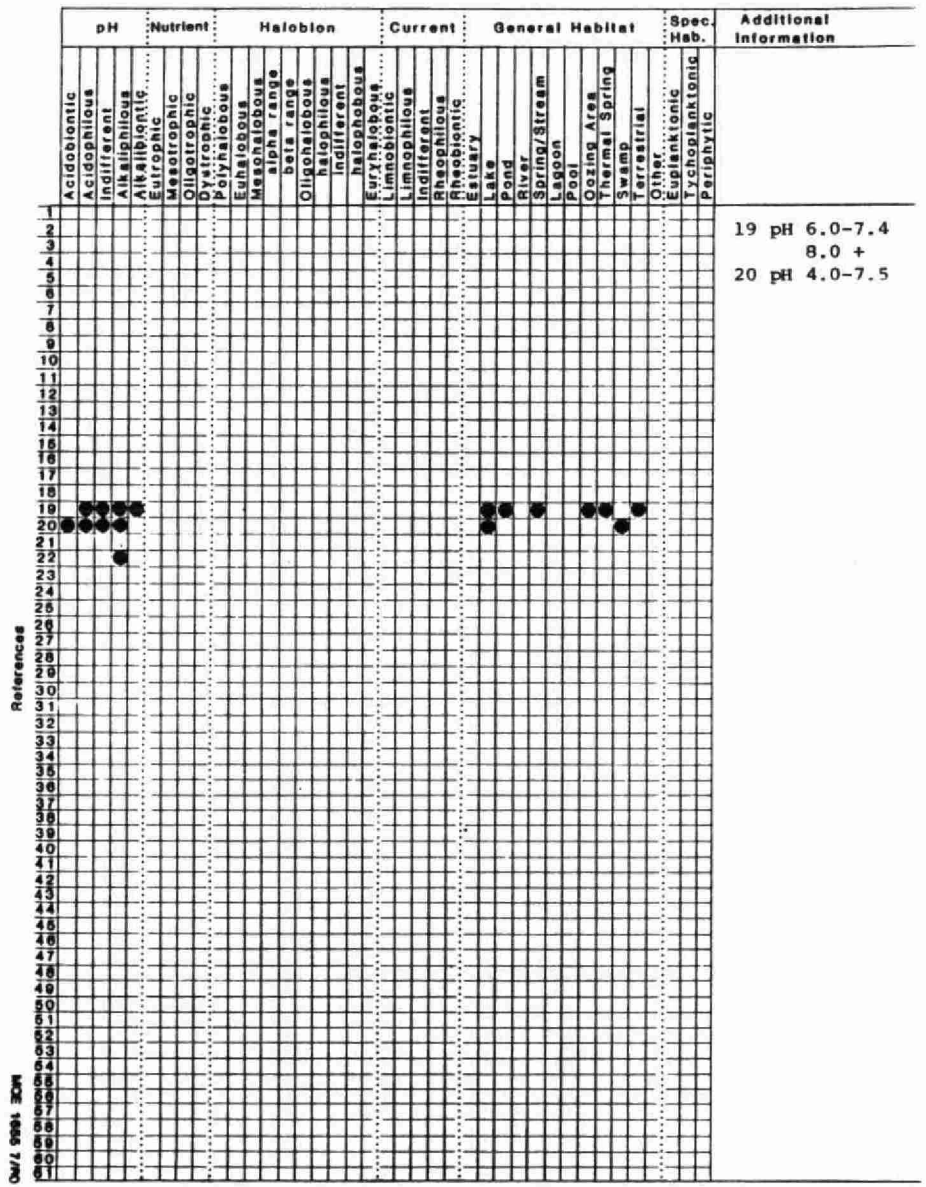
References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Halobion: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Navicula bryophila Peters.

Synonym



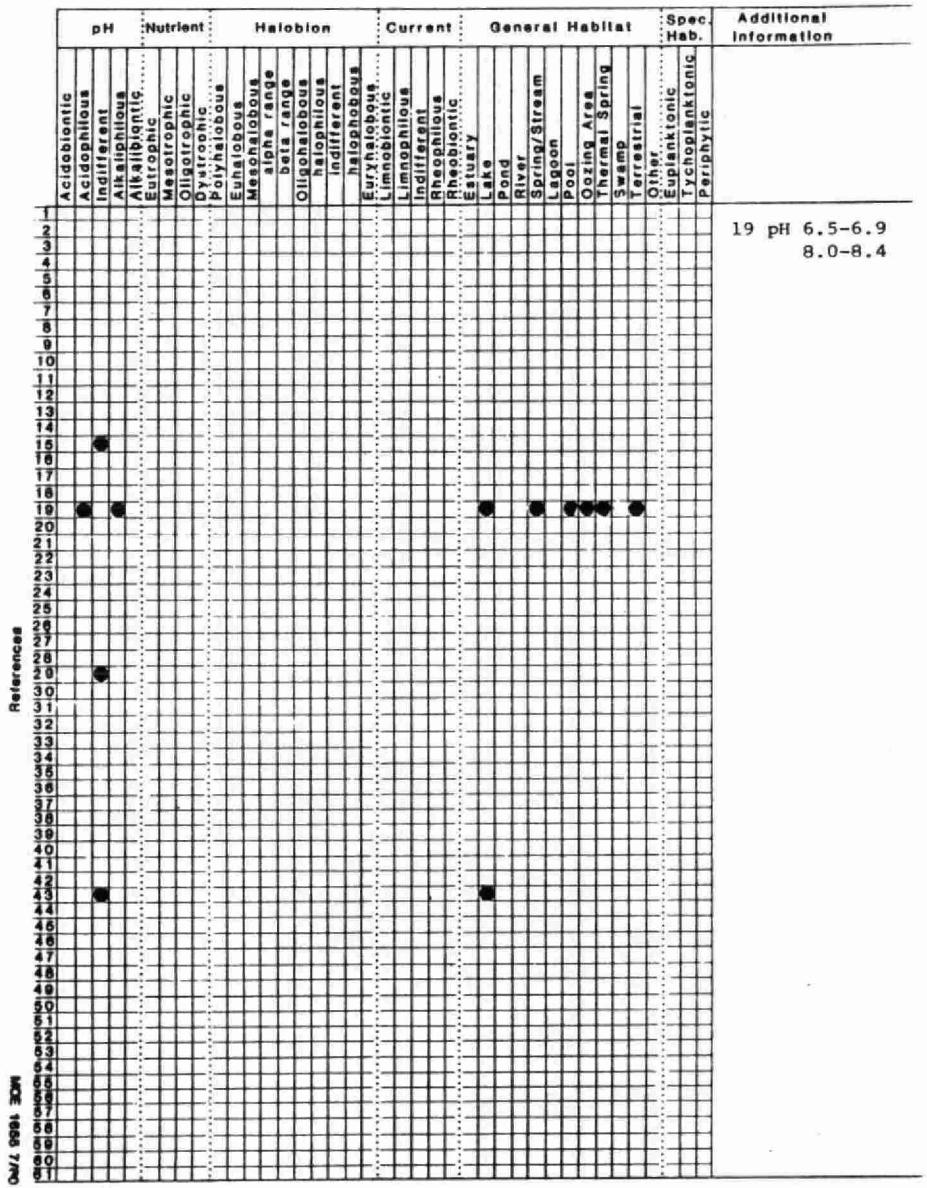
Additional Information

19 pH 6.0-7.4
8.0 +
20 pH 4.0-7.5

Ministry of the Environment
Ontario

Taxon Navicula bryophila var. lapponica Hust.

Synonym



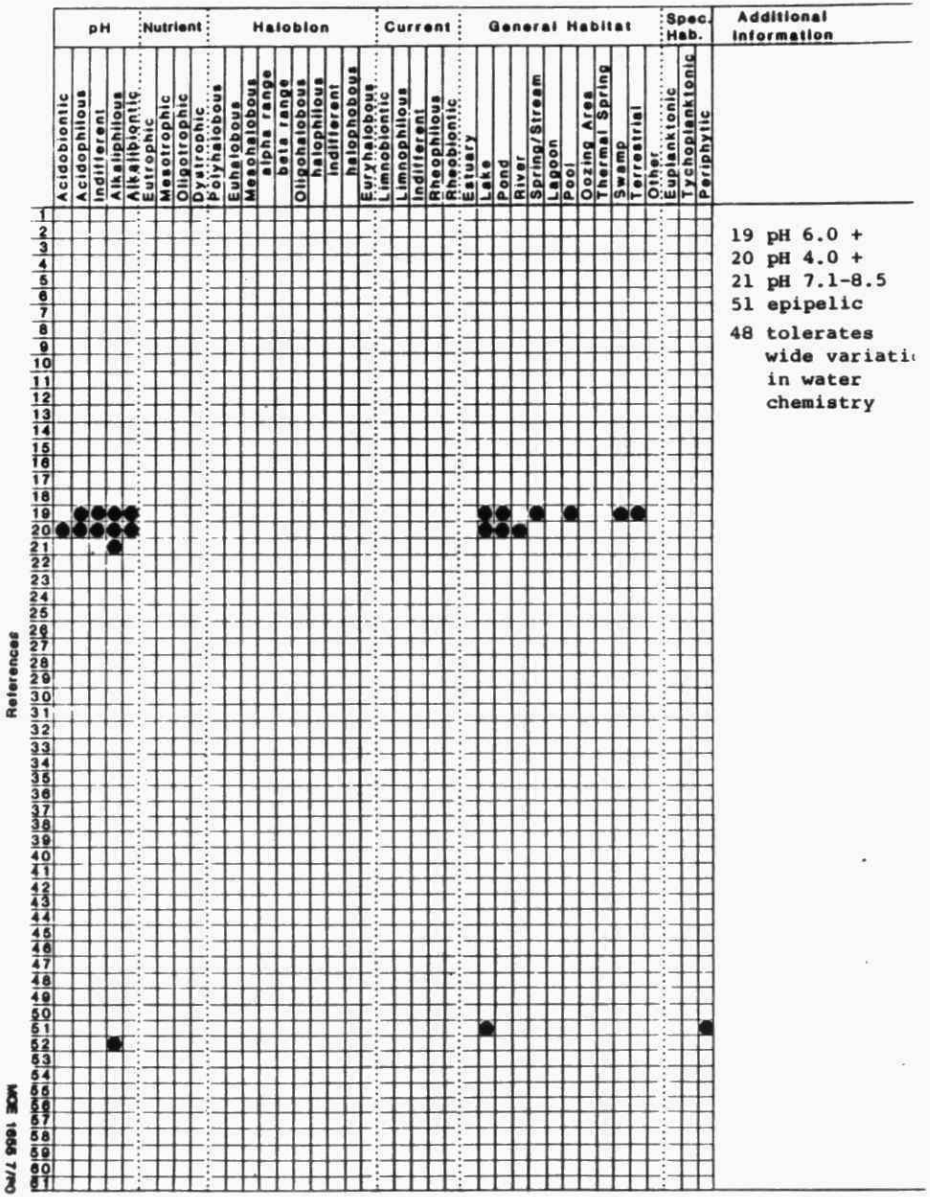
Additional Information

19 pH 6.5-6.9
8.0-8.4

Ministry of the Environment
Ontario

Taxon Navicula capitata Ehr. var. capitata

Synonym Navicula hungarica var. capitata (Ehr.) Cl.

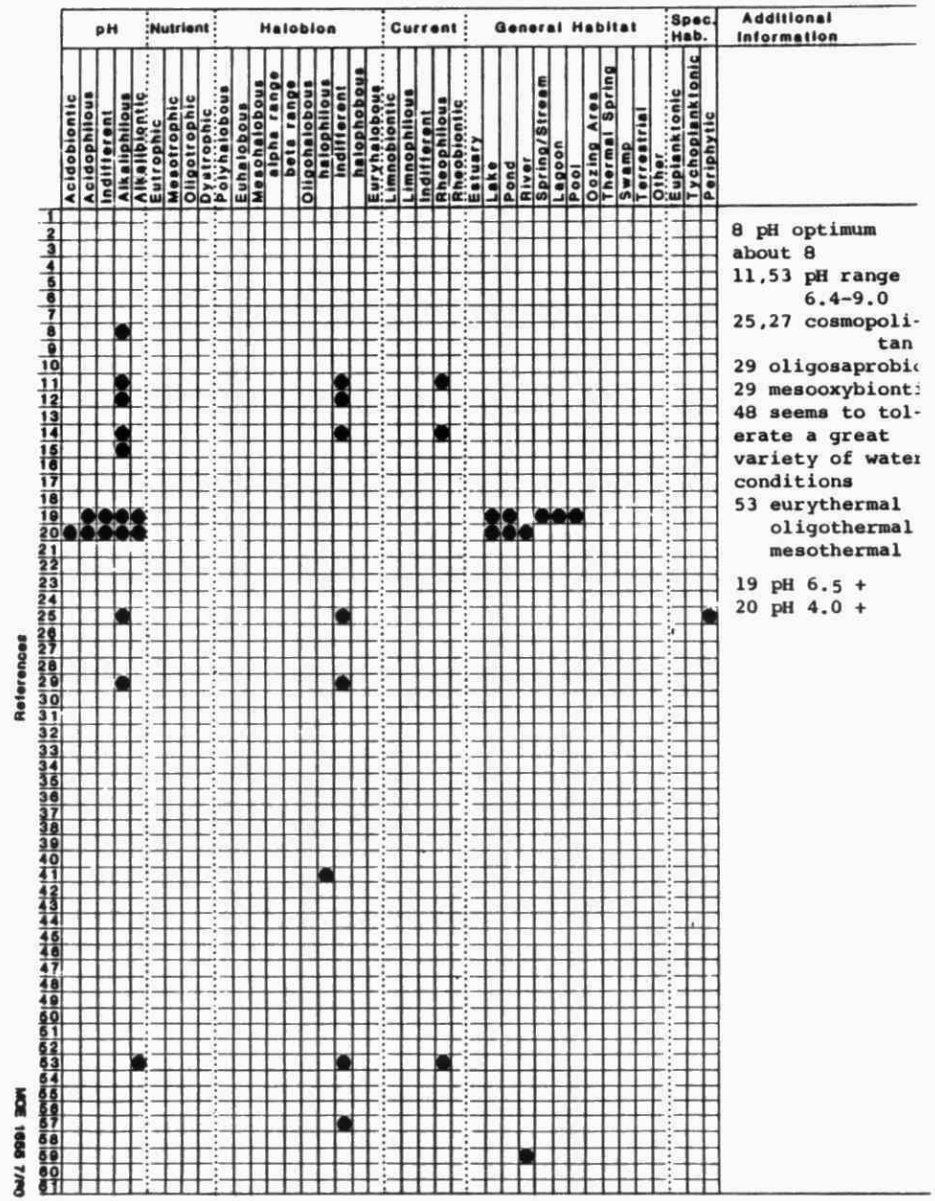


19 pH 6.0 +
20 pH 4.0 +
21 pH 7.1-8.5
51 epipelic
48 tolerates wide variati in water chemistry

Ministry of the Environment
Ontario

Taxon Navicula capitata var. hungarica (Grun.) Ross

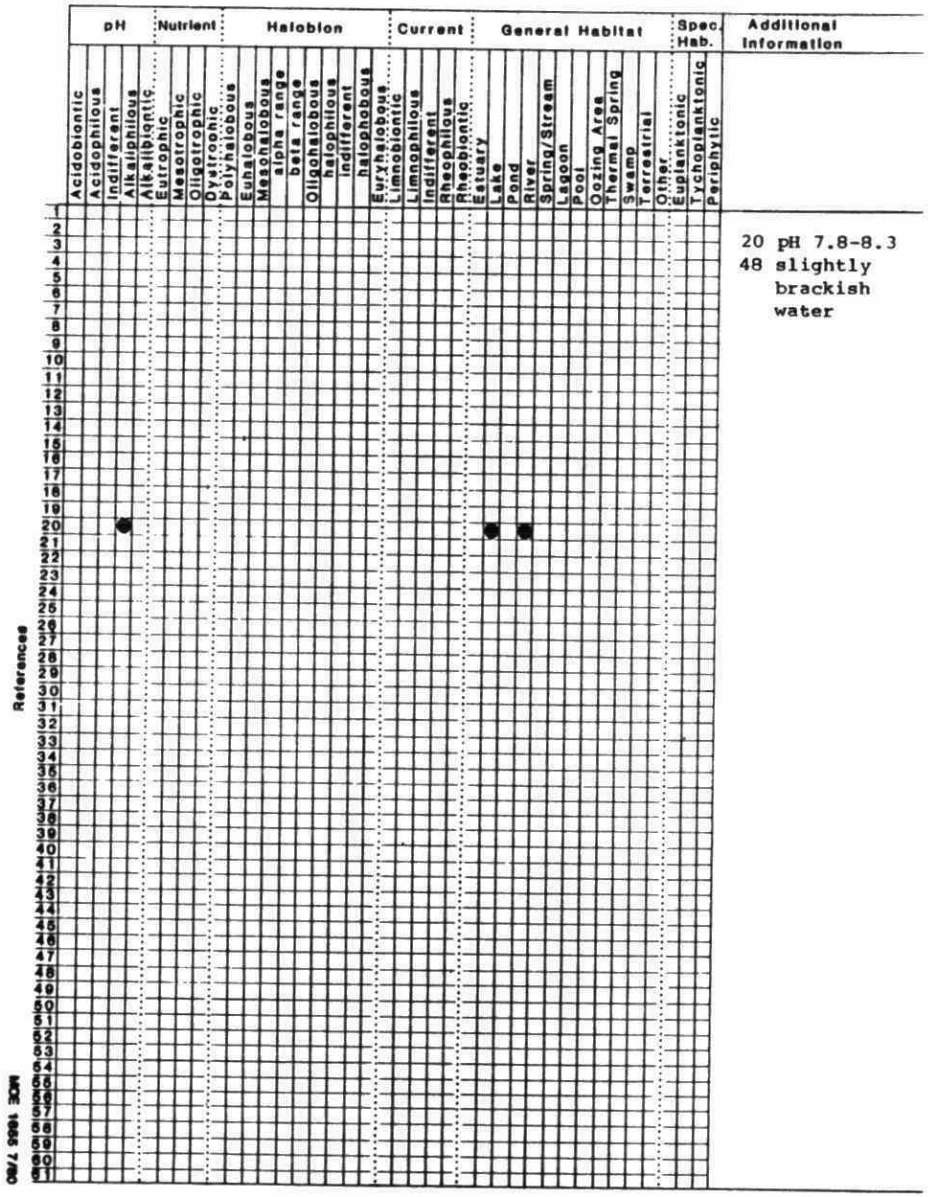
Synonym Navicula hungarica Grun.



8 pH optimum about 8
11,53 pH range 6.4-9.0
25,27 cosmopolitan
29 oligosaprobic
29 mesooxybiont
48 seems to tolerate a great variety of water conditions
53 eurythermal oligothermal mesothermal
19 pH 6.5 +
20 pH 4.0 +

Taxon Navicula capitata var. luneburgensis (Grun.) Patr.

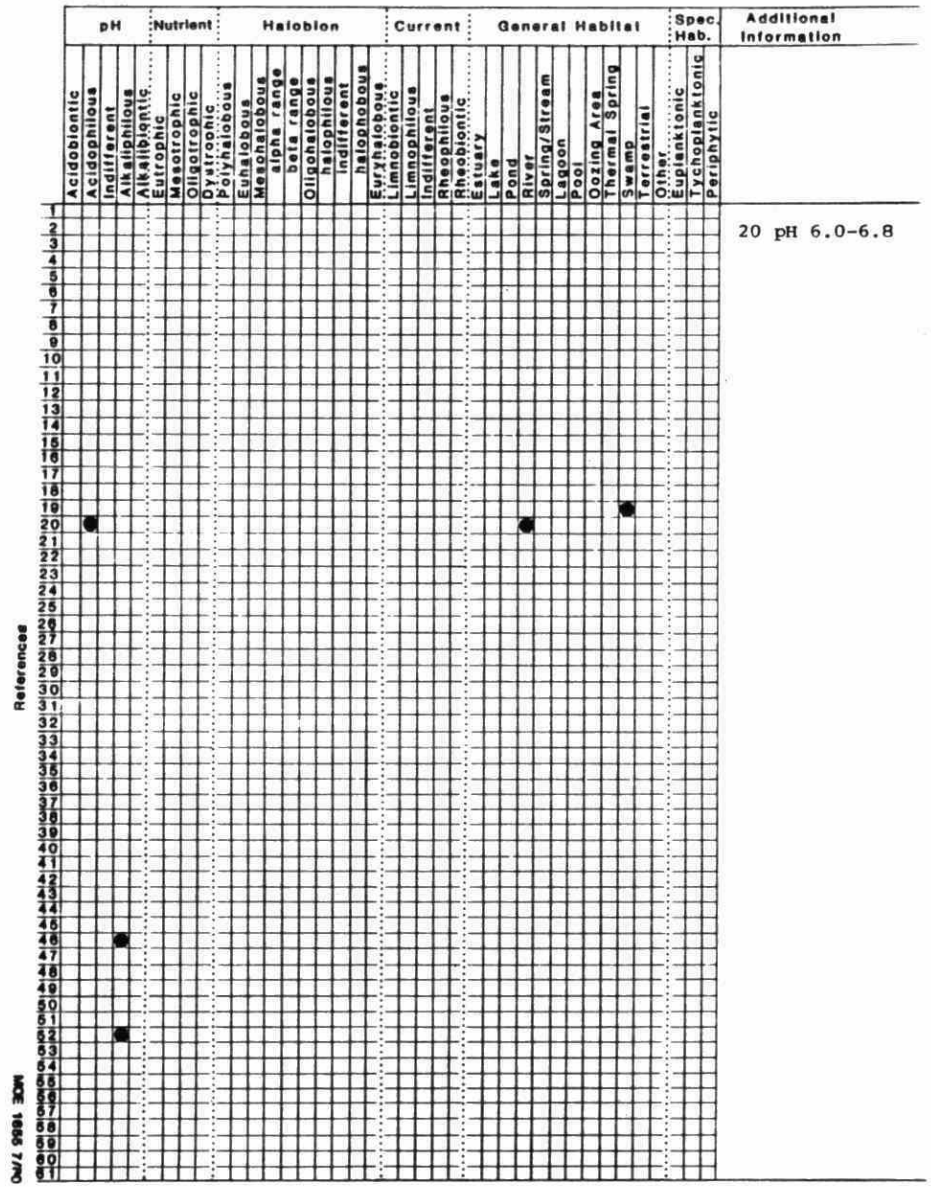
Synonym Navicula hungarica var. luneburgensis Grun. 20



20 pH 7.8-8.3
48 slightly brackish water

Taxon Navicula cari Ehr.

Synonym

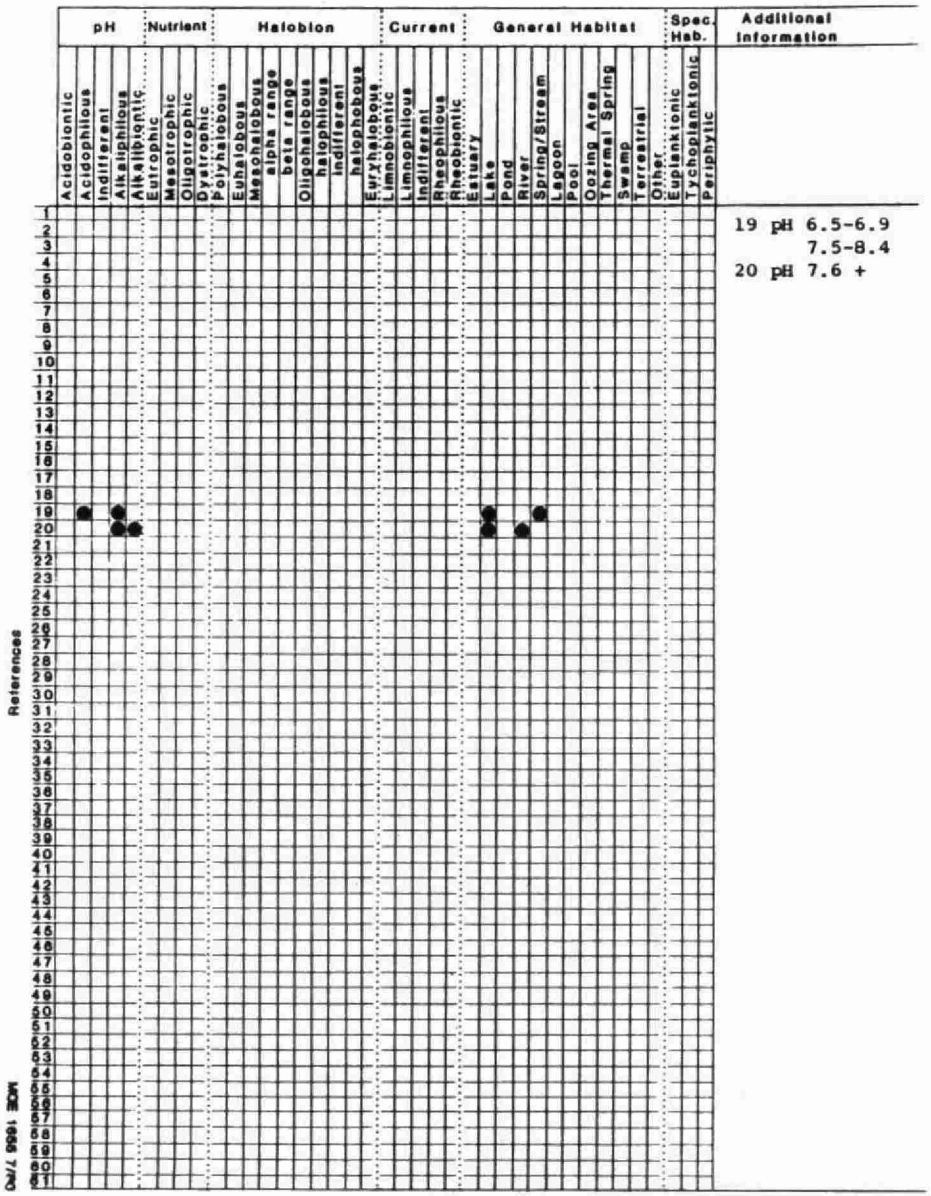


20 pH 6.0-6.8

Ministry of the Environment
Ontario

Taxon Navicula certa Hust.

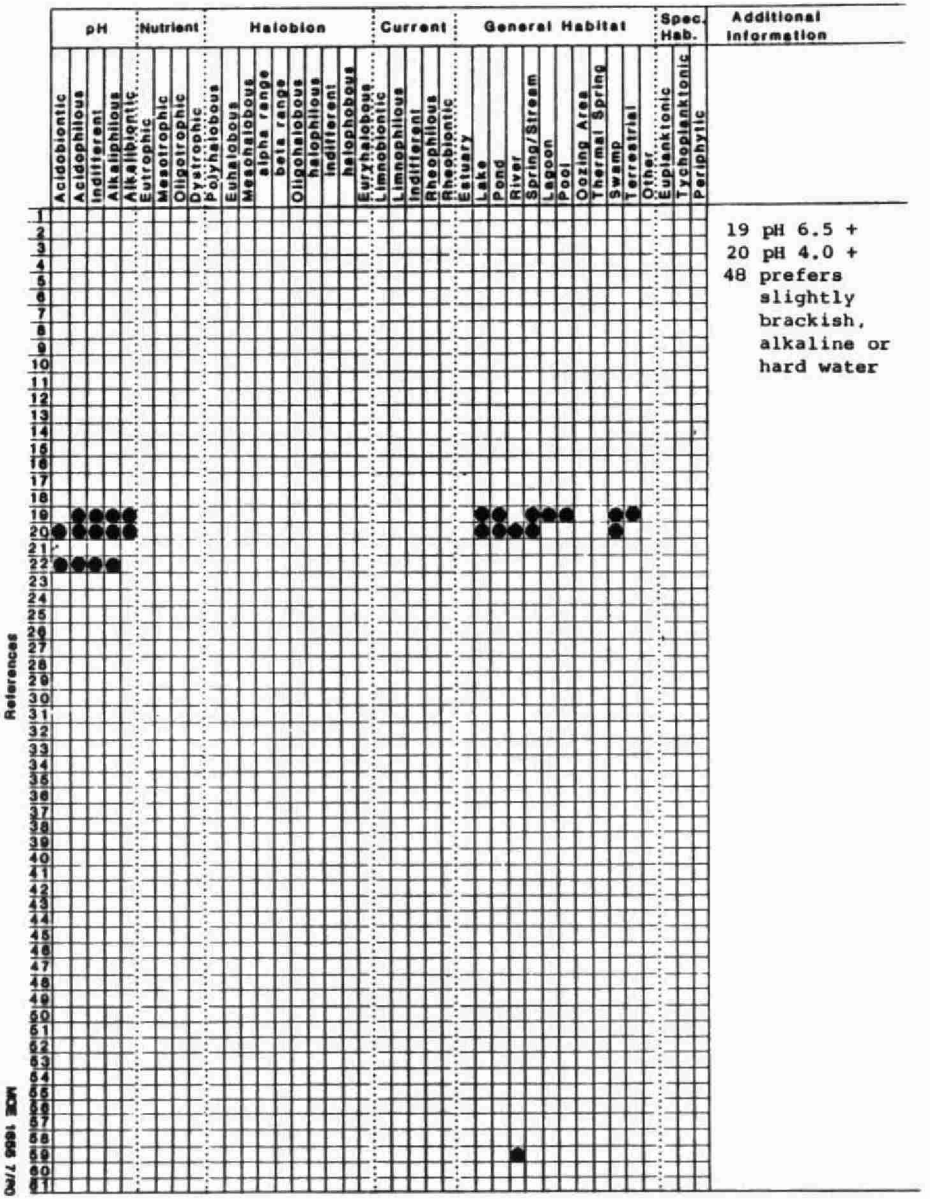
Synonym



Ministry of the Environment
Ontario

Taxon Navicula cincta (Ehr.) Ralfs

Synonym



Ministry of the Environment
Ontario

Taxon Navicula clementioides Hust.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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19 pH 8.0-8.4
20 pH 6.2, 8.5

MOE 1986 7/MO

Ministry of the Environment
Ontario

Taxon Navicula clementis Grun.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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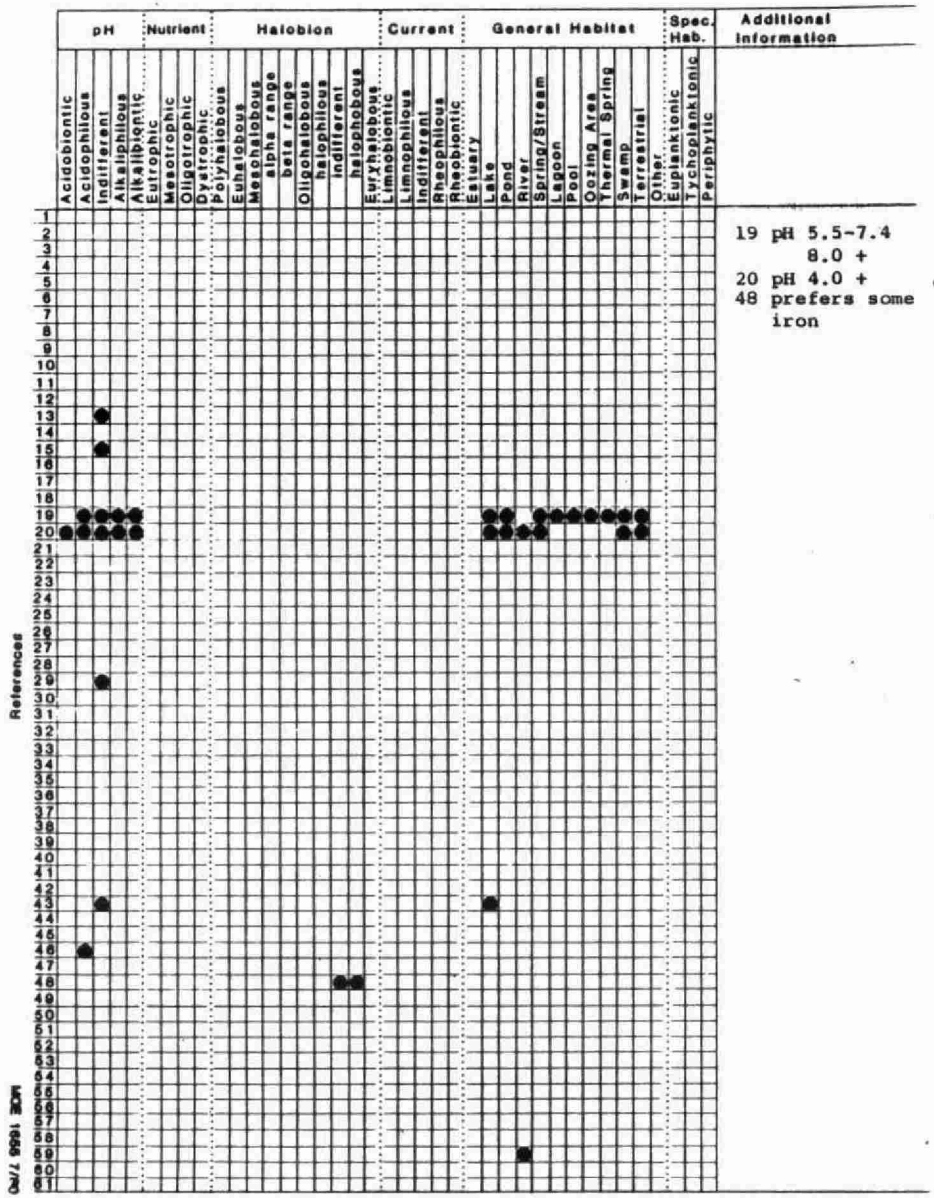
19 pH 6.5 +
20 pH 4.0 +
48 littoral. often aerophilous

MOE 1986 7/MO

Ministry of the Environment
Ontario

Taxon Navicula cocconeiformis Greg. ex Grev.

Synonym

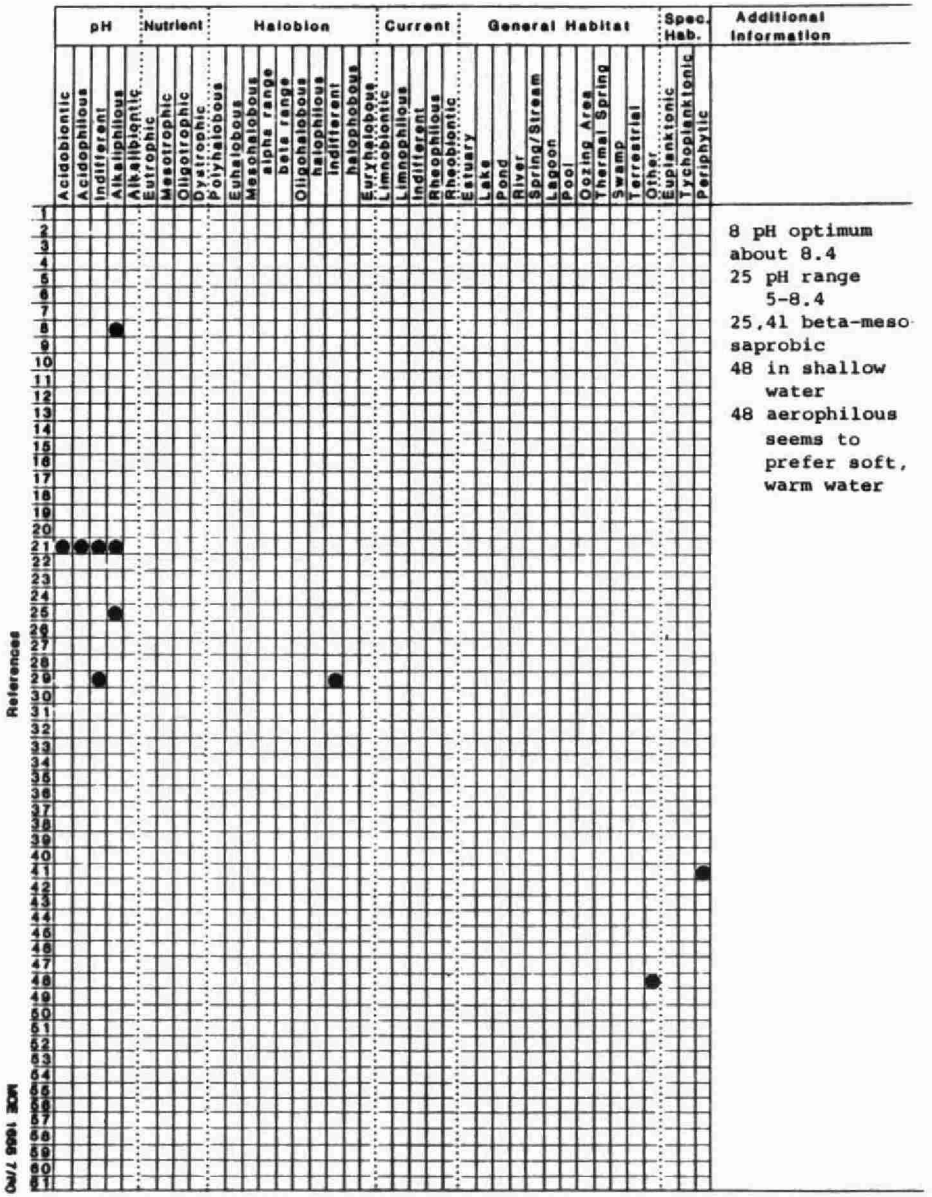


19 pH 5.5-7.4
8.0 +
20 pH 4.0 +
48 prefers some iron

Ministry of the Environment
Ontario

Taxon Navicula confervacea (Kutz.) Grun.

Synonym

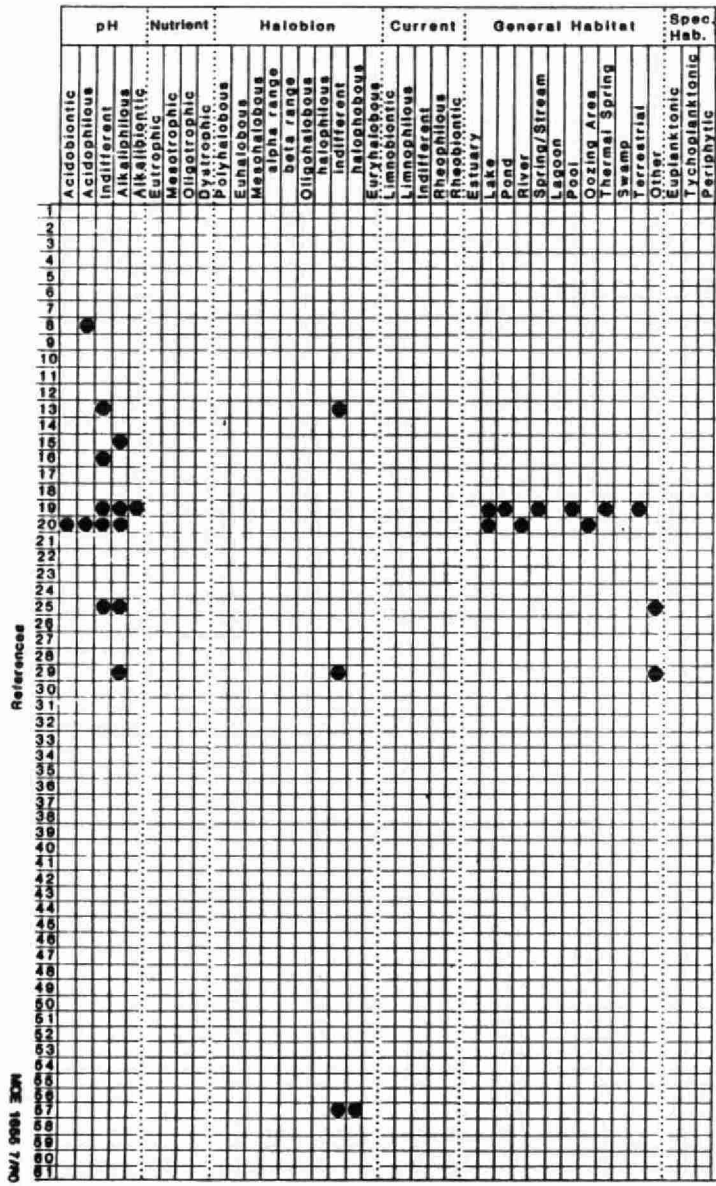


8 pH optimum about 8.4
25 pH range 5-8.4
25,41 beta-meso saprobic
48 in shallow water
48 aerophilous seems to prefer soft, warm water

Ministry of the Environment
Ontario

Taxon Navicula contenta Grun. var. contenta

Synonym



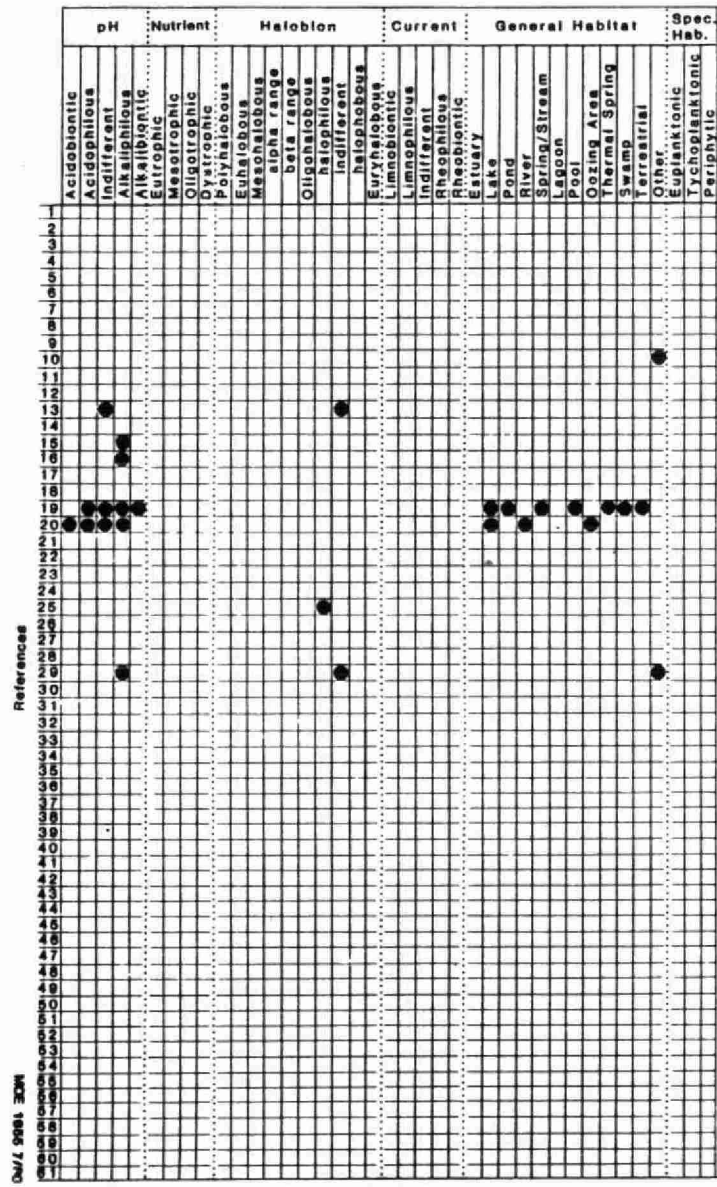
Additional information

8 pH optimum less than 6
8 prefers oxyge rich water
19 pH 7.0 +
20 pH 4.0-8.9
25 cosmopolitan
29 polyoxybion- tic
25,29 aerophil- ous

Ministry of the Environment
Ontario

Taxon Navicula contenta f. biceps(Arn.) Grun.

Synonym



Additional information

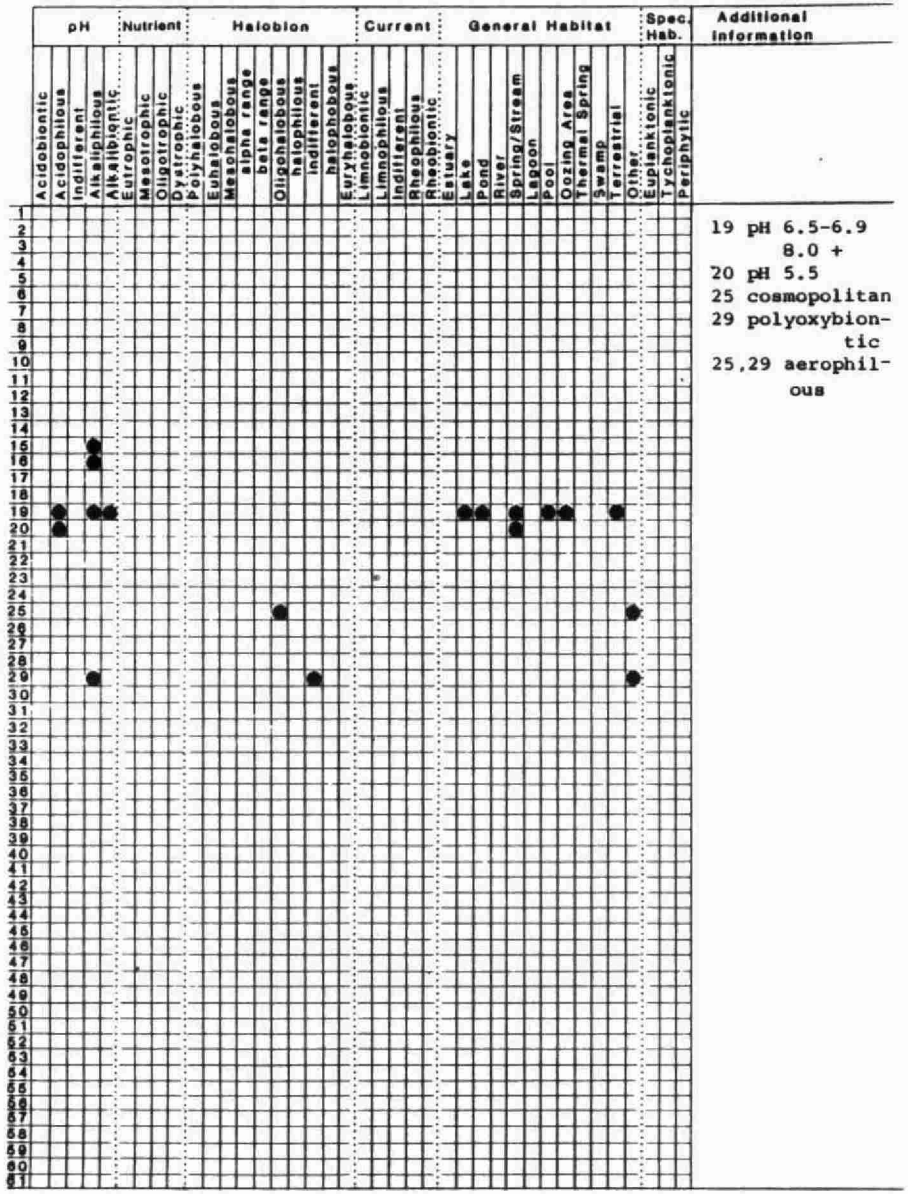
19 pH 6.5-7.4 8.0 +
20 pH 4.0-8.9
25,27 cosmopoli tan
29 polyoxybion- tic

10,29 aero- philous

Ministry of the Environment
Ontario

Taxon Navicula contenta f. parallela Peter.

Synonym



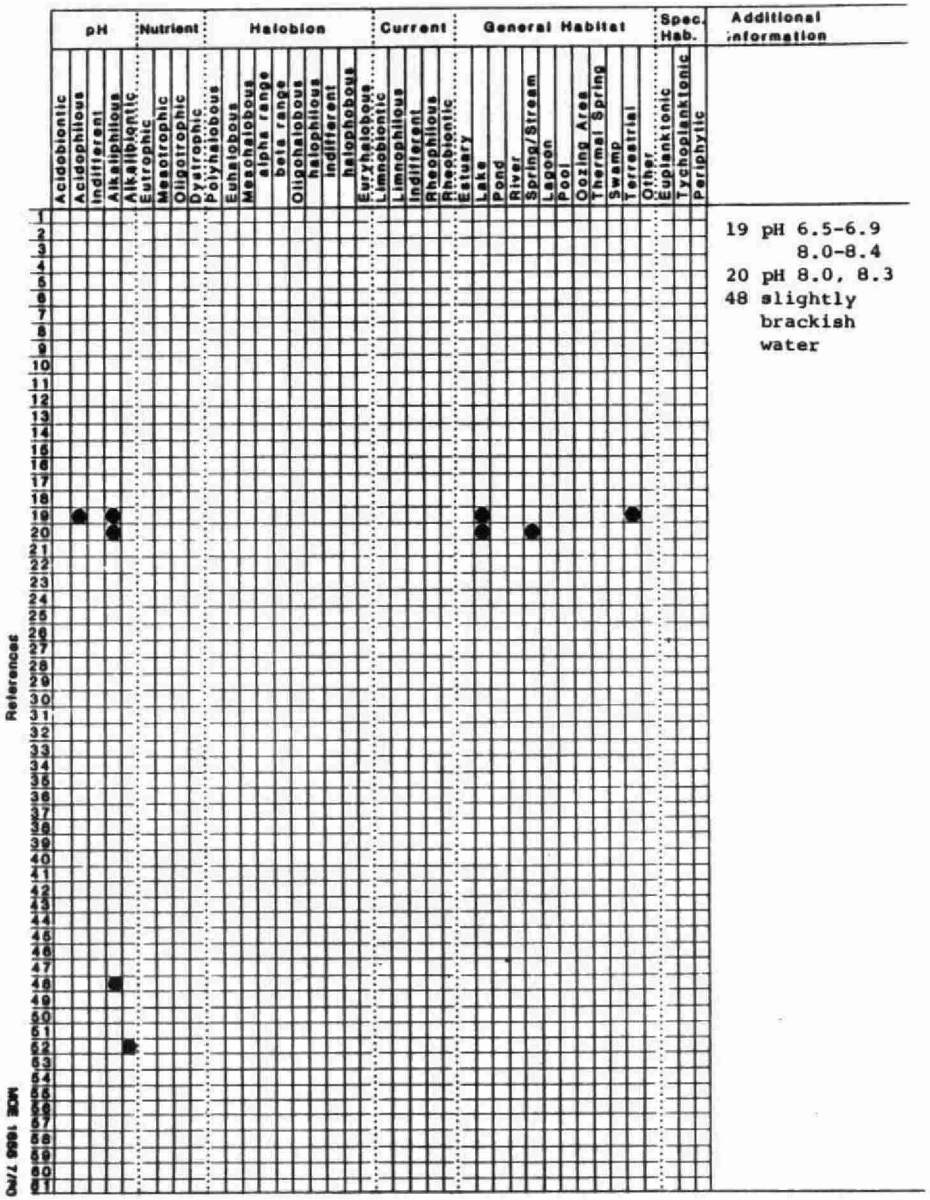
Additional information

19 pH 6.5-6.9
8.0 +
20 pH 5.5
25 cosmopolitan
29 polyoxybiontic
25,29 aerophilous

Ministry of the Environment
Ontario

Taxon Navicula costulata Grun.

Synonym



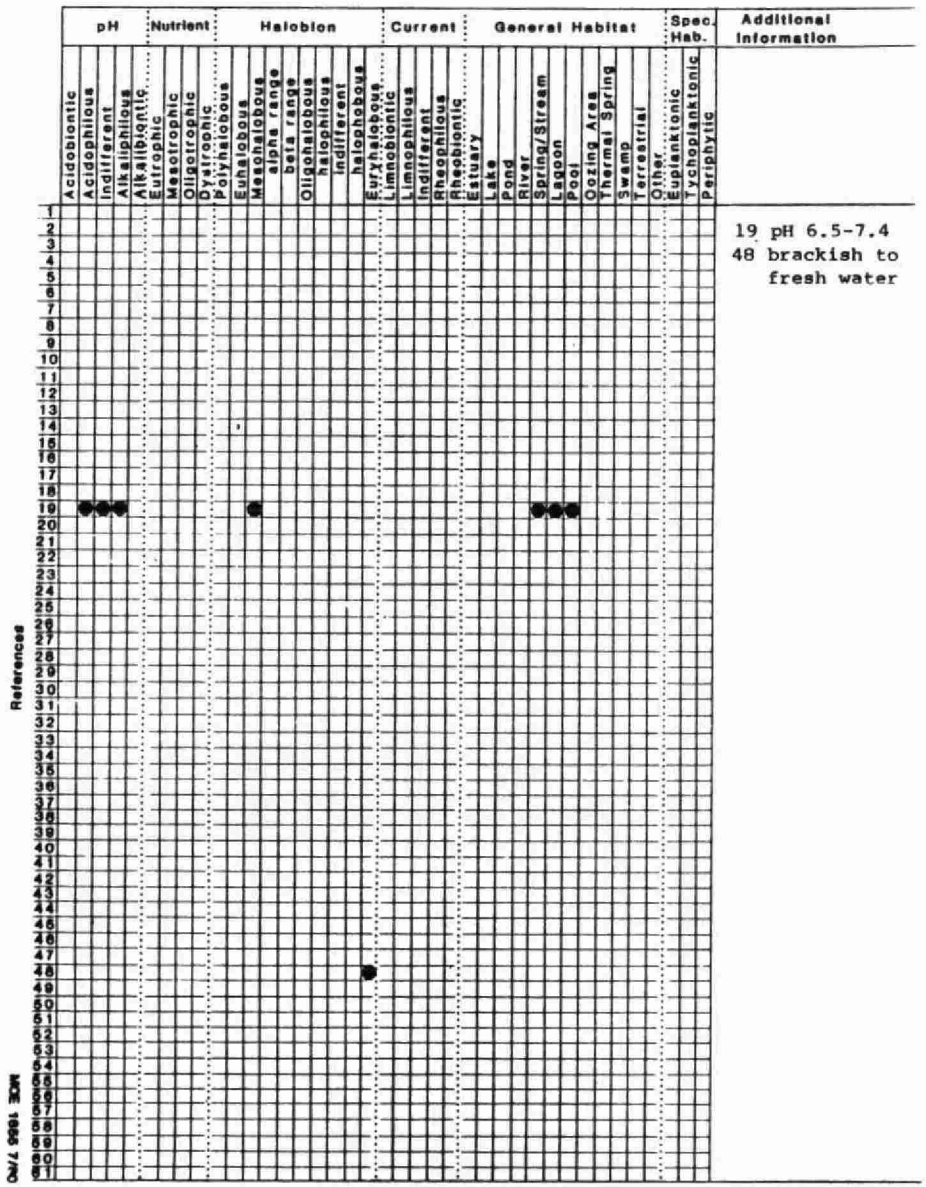
Additional information

19 pH 6.5-6.9
8.0-8.4
20 pH 8.0, 8.3
48 slightly brackish water

Ministry of the Environment
Ontario

Taxon Navicula crucicula (W. Sm.) Donk var. crucicula

Synonym

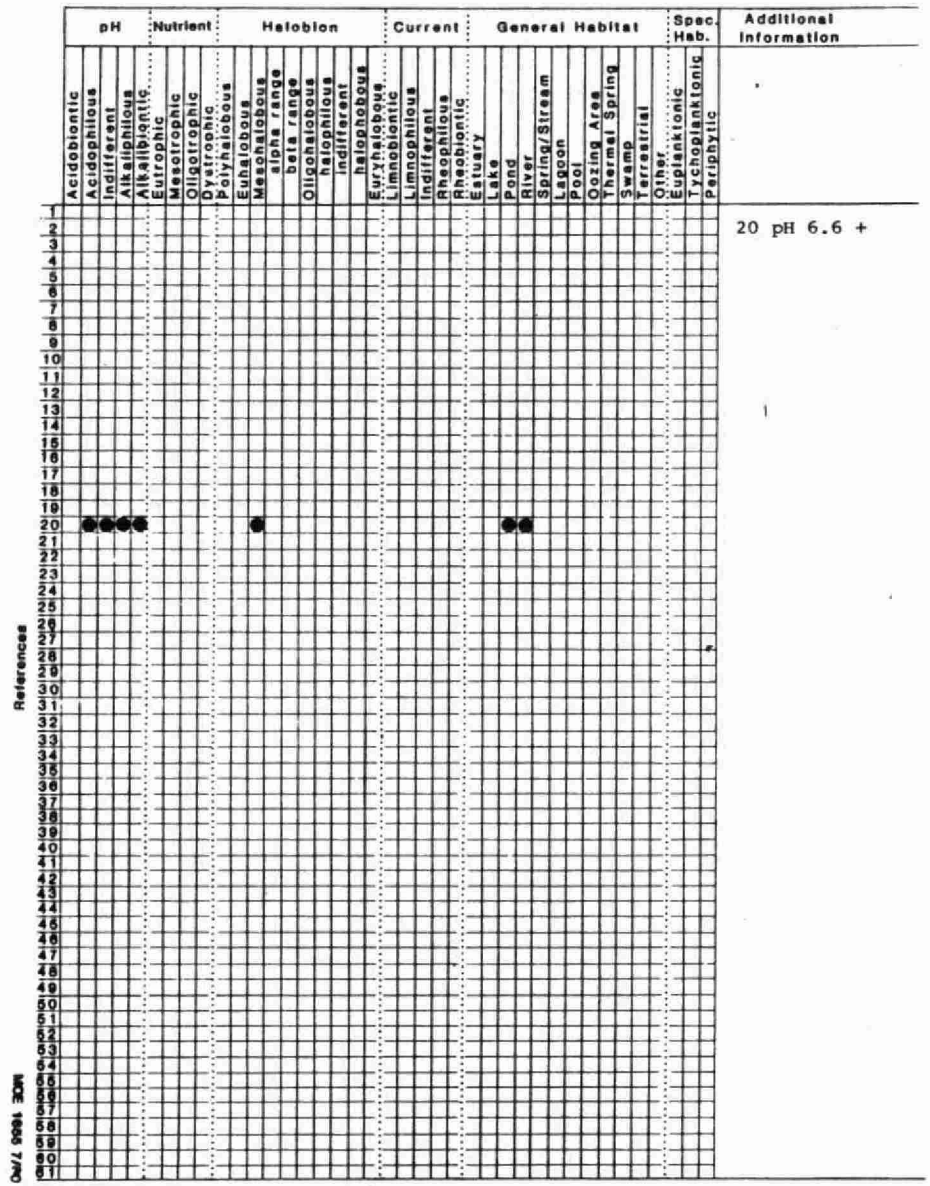


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Ministry of the Environment
Ontario

Taxon Navicula crucicula var. obtusata Grun.

Synonym

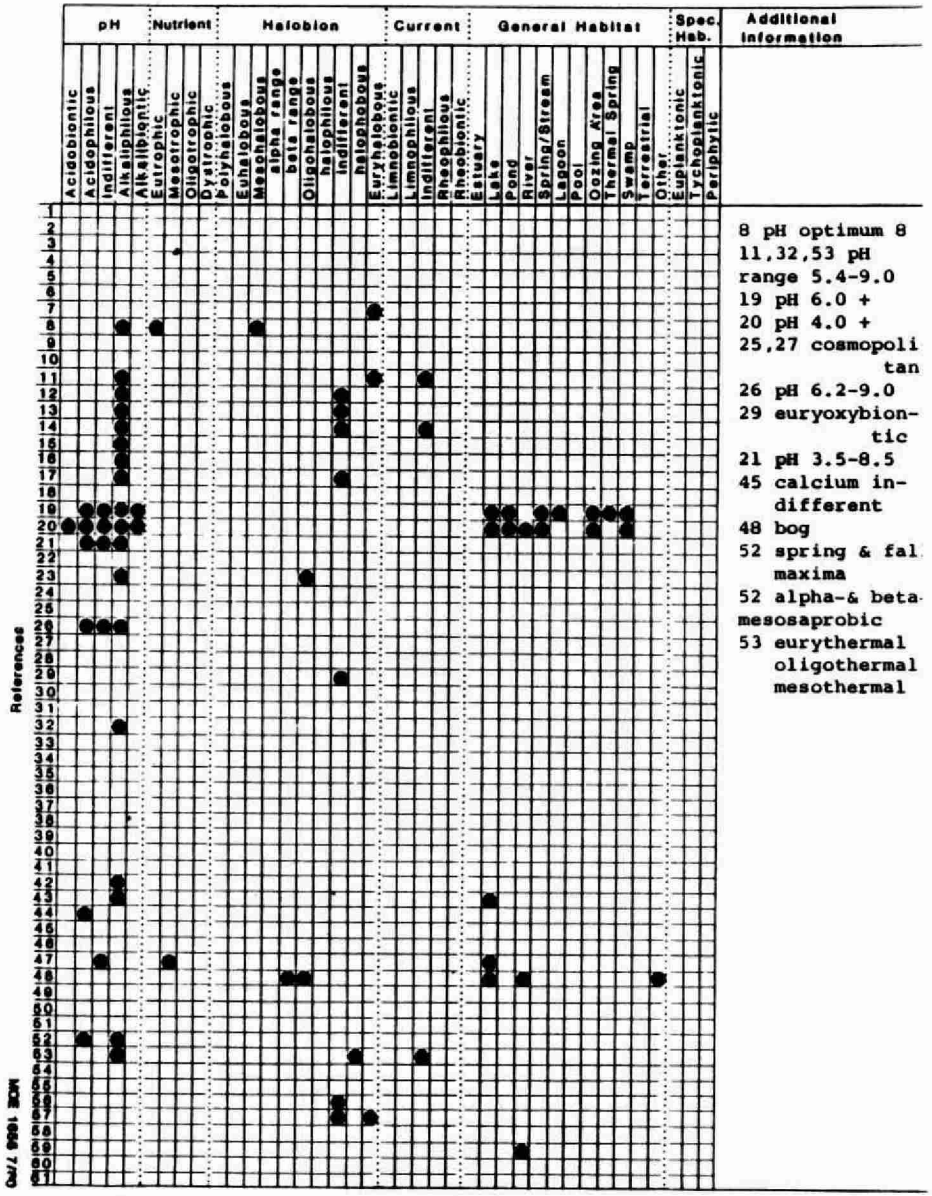


MOE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula cryptocephala Kutz. var. cryptocephala

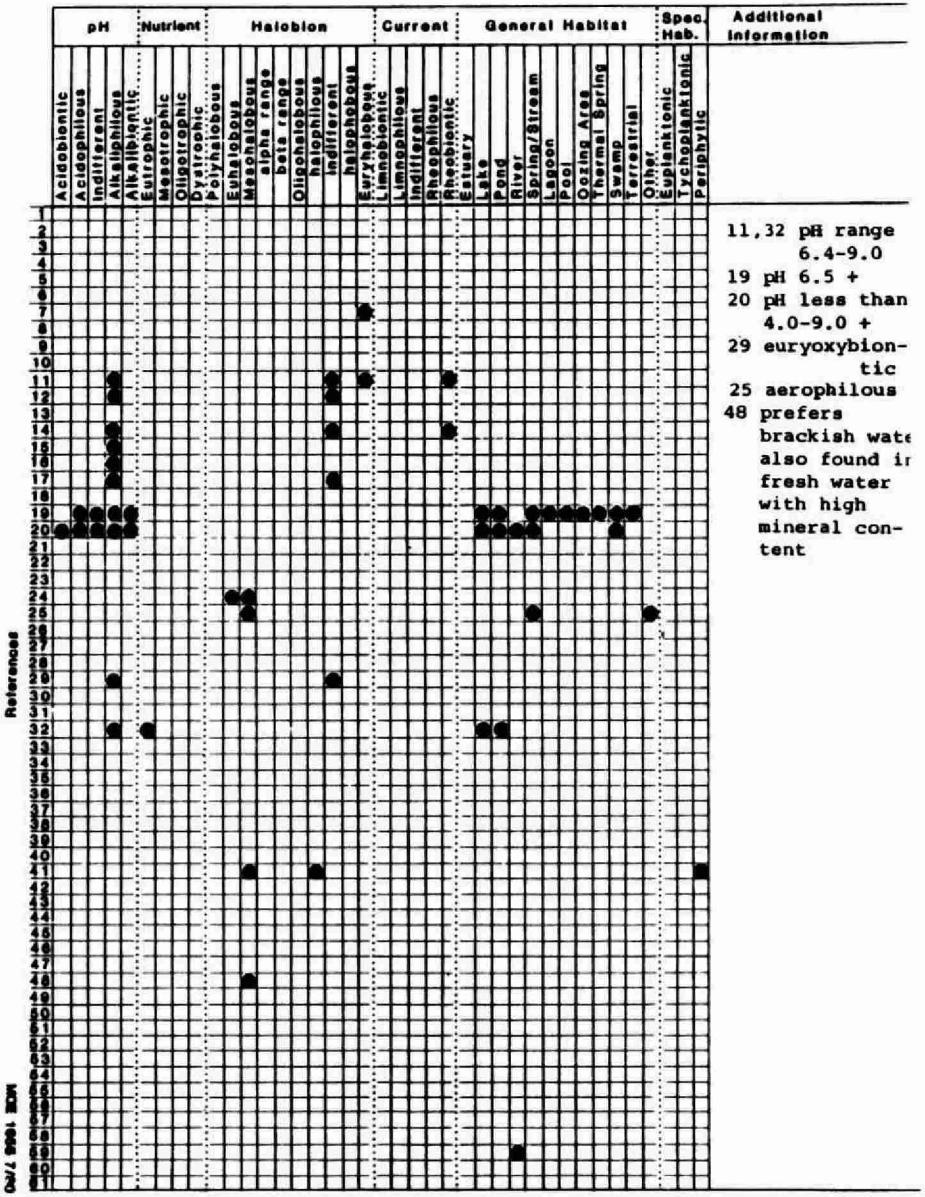
Synonym



Ministry of the Environment
Ontario

Taxon Navicula cryptocephala var. veneta (Kutz.) Rabh.

Synonym

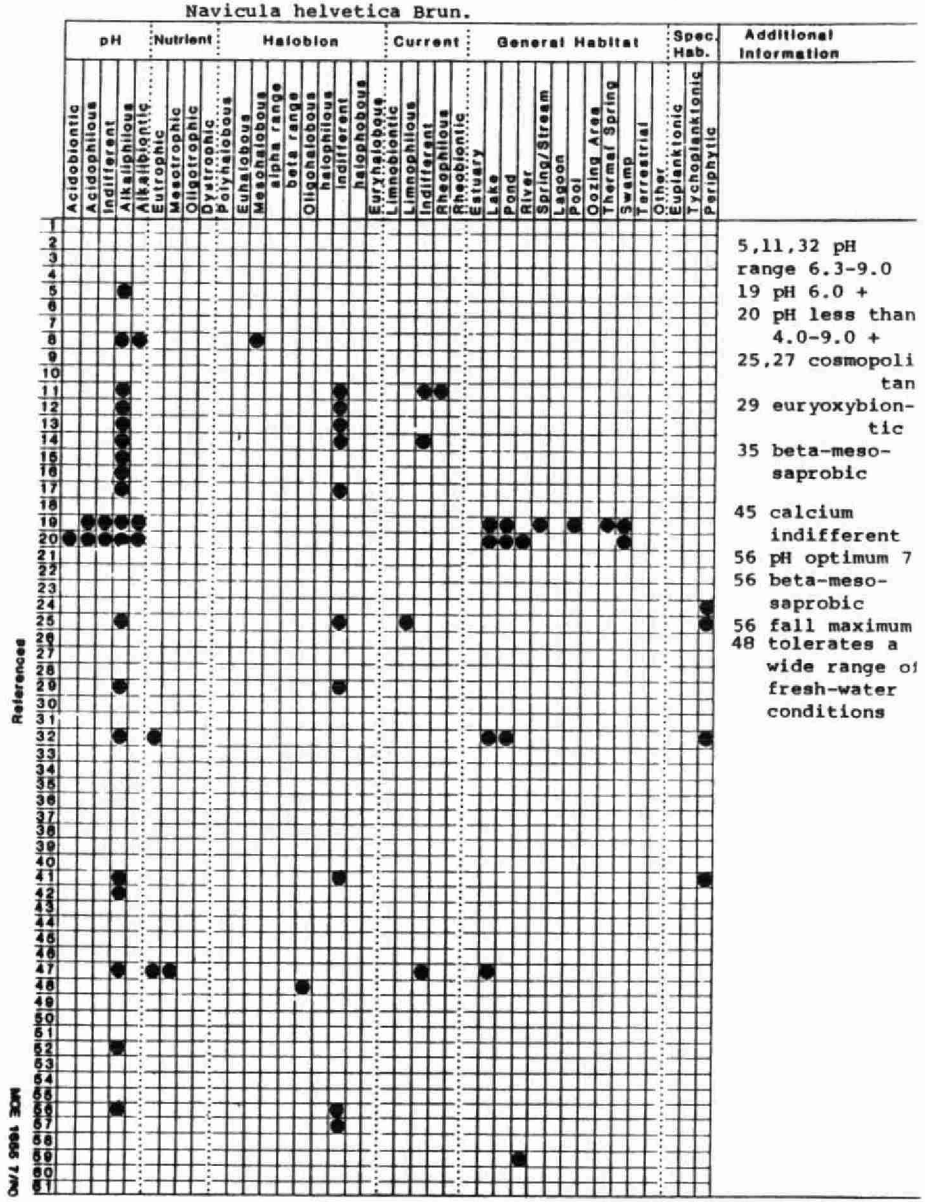


Ministry of the Environment
Ontario

Taxon Navicula cuspidata (Kutz.) Kutz. var. cuspidata

Synonym Navicula cuspidata var. ambiqua (Ehr.?) Cl.

Navicula helvetica Brun.

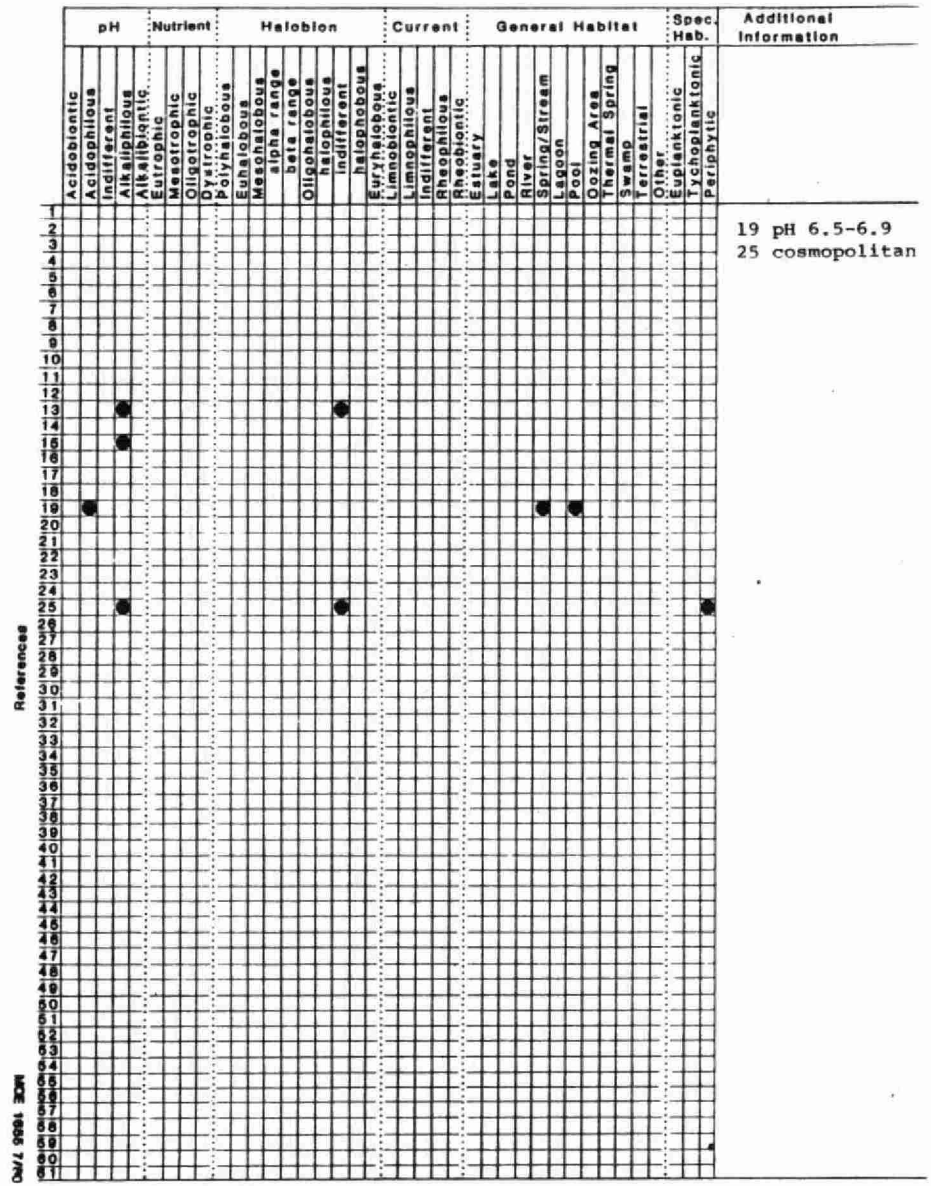


5,11,32 pH range 6.3-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 euryoxybiontic
35 beta-mesosaprobic
45 calcium indifferent
56 pH optimum 7
56 beta-mesosaprobic
56 fall maximum
48 tolerates a wide range of fresh-water conditions

Ministry of the Environment
Ontario

Taxon Navicula cuspidata var. heribaudii Peraq.

Synonym

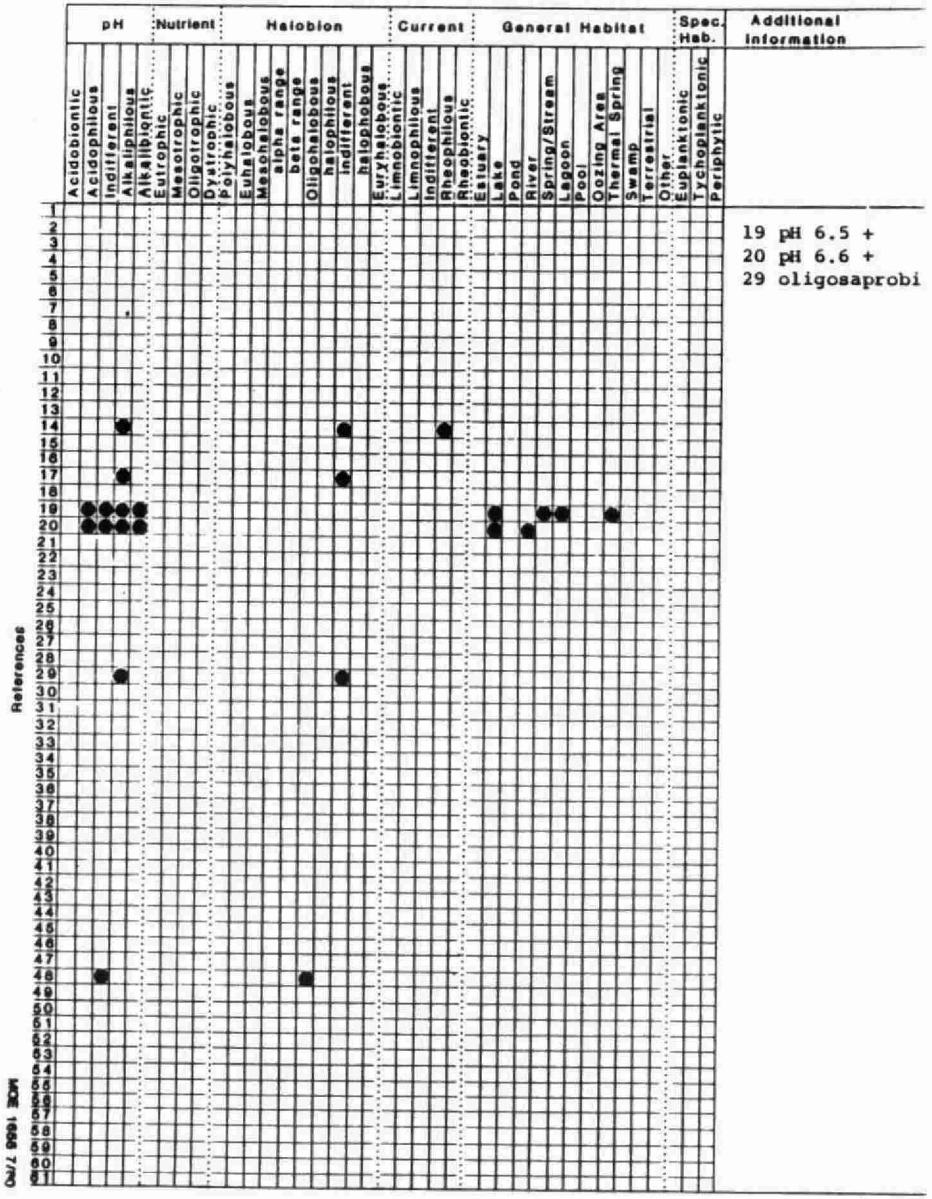


19 pH 6.5-6.9
25 cosmopolitan

Ministry of the Environment
Ontario

Taxon Navicula decussis Ostr.

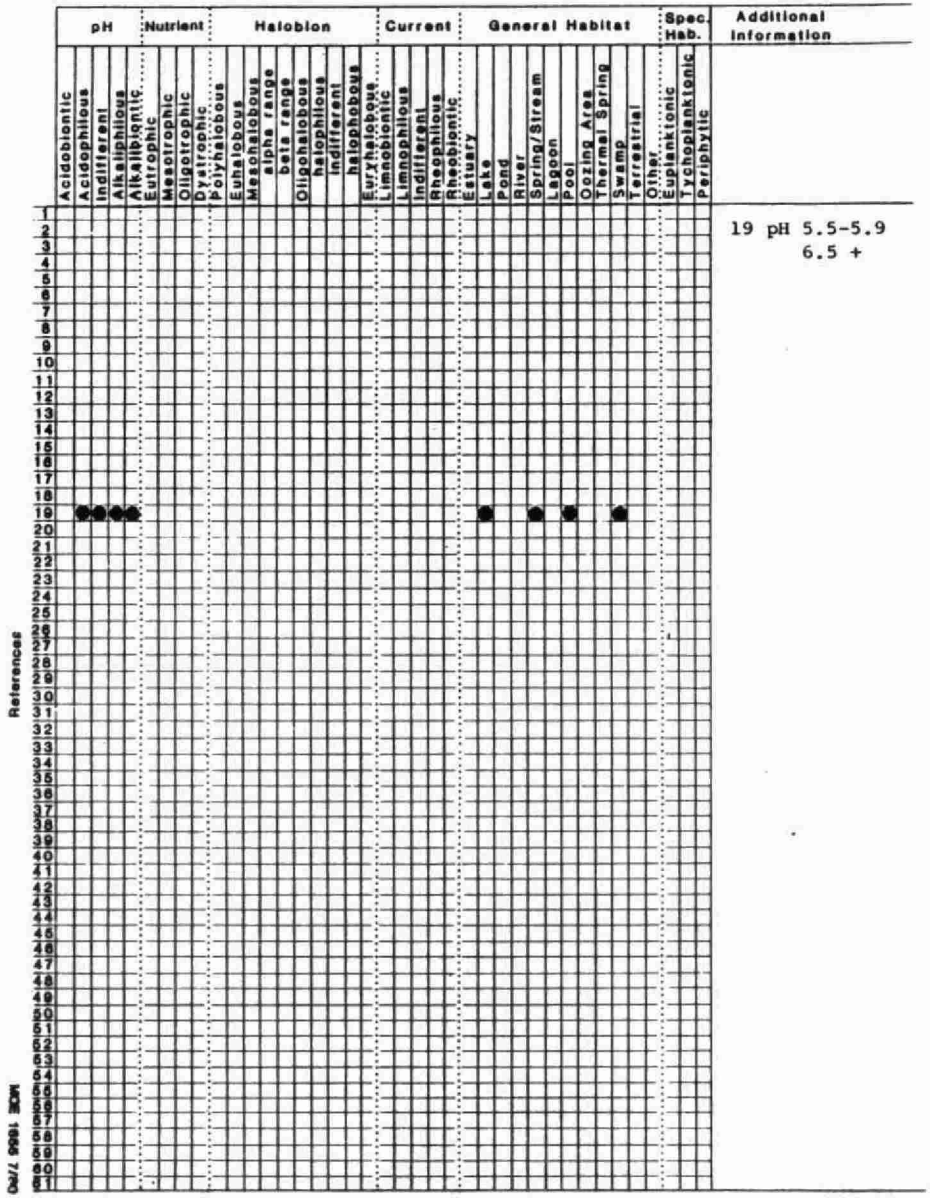
Synonym



Ministry of the Environment
Ontario

Taxon Navicula detenta Hust.

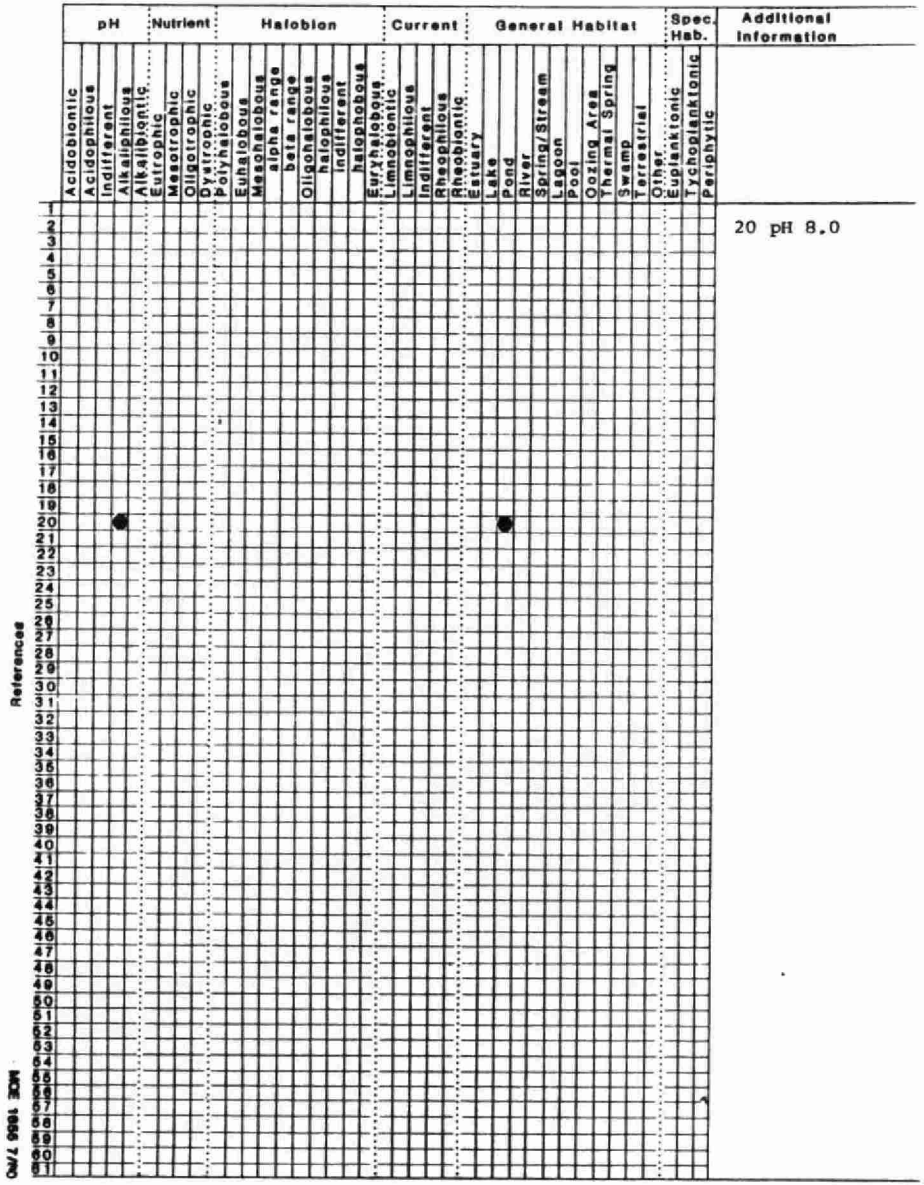
Synonym



Ministry of the Environment
Ontario

Taxon Navicula dicephala var. chilensis Hust.

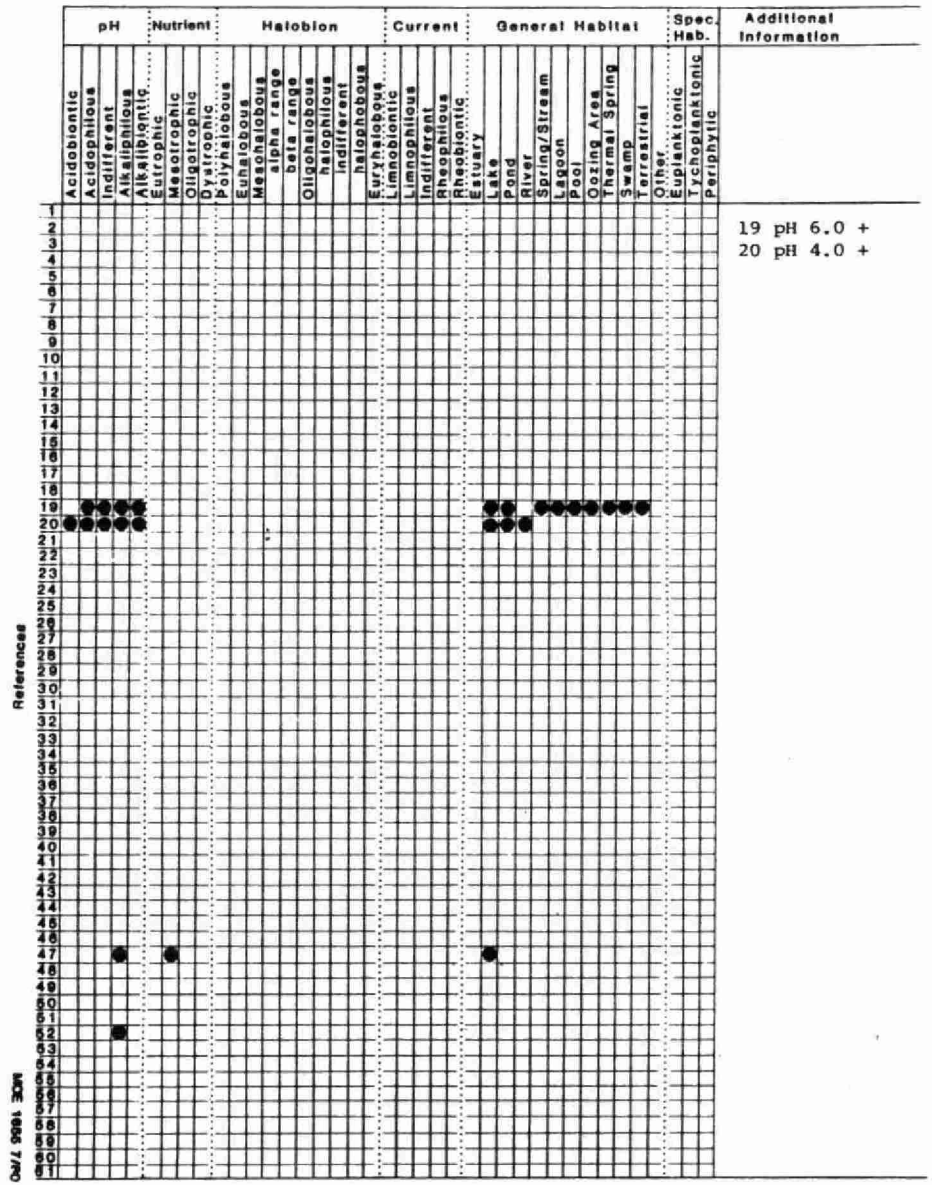
Synonym



Ministry of the Environment
Ontario

Taxon Navicula dicephala Ehr. var. dicephala

Synonym



Ministry of the Environment
Ontario

Taxon Navicula dicephala f. cuneata (M. Moll) Foged

Synonym

References	pH					Nutrient					Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1666 7/70

Ministry of the Environment
Ontario

Taxon Navicula dicephala var. elginensis (Greg.) Cl.

Synonym

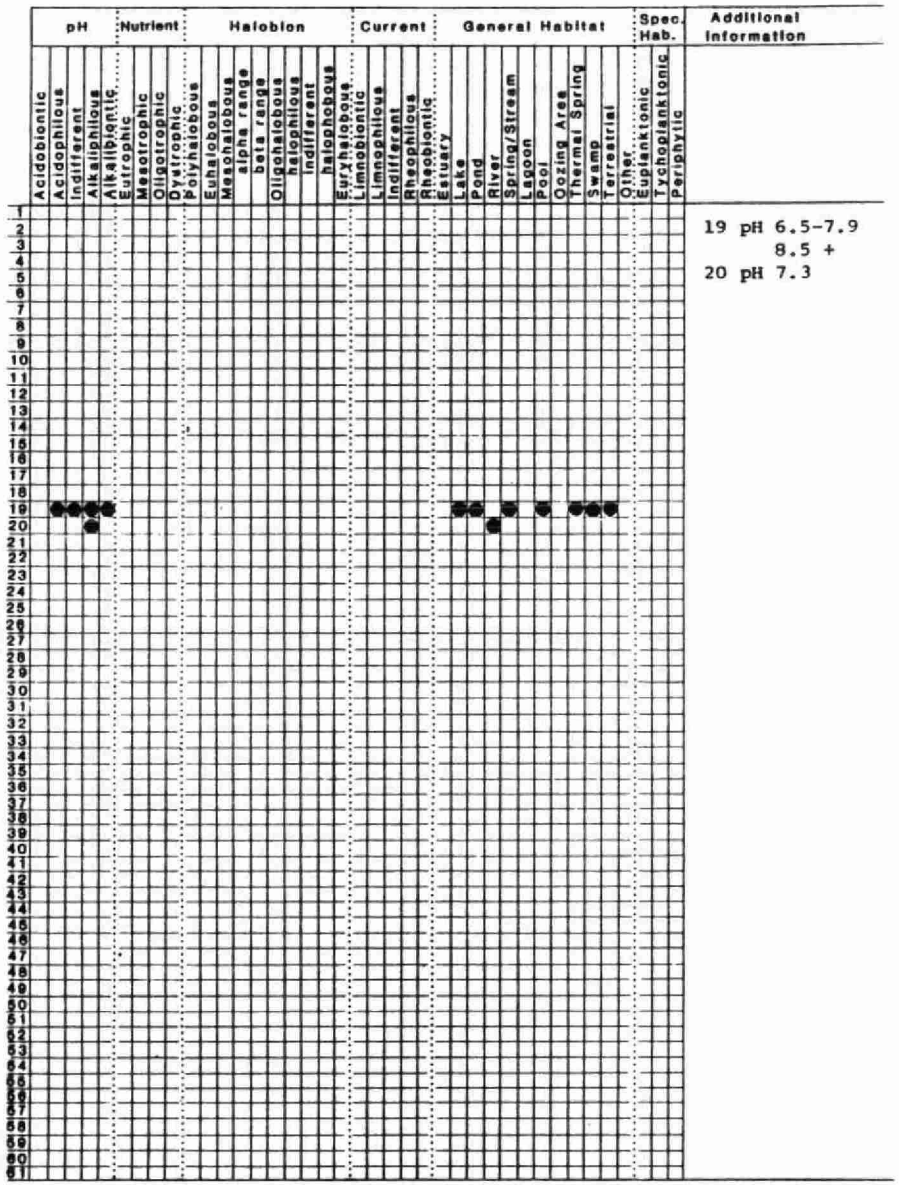
References	pH					Nutrient					Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1666 7/70

Ministry of the Environment
Ontario

Taxon Navicula dicephala var. undulata Østr.

Synonym

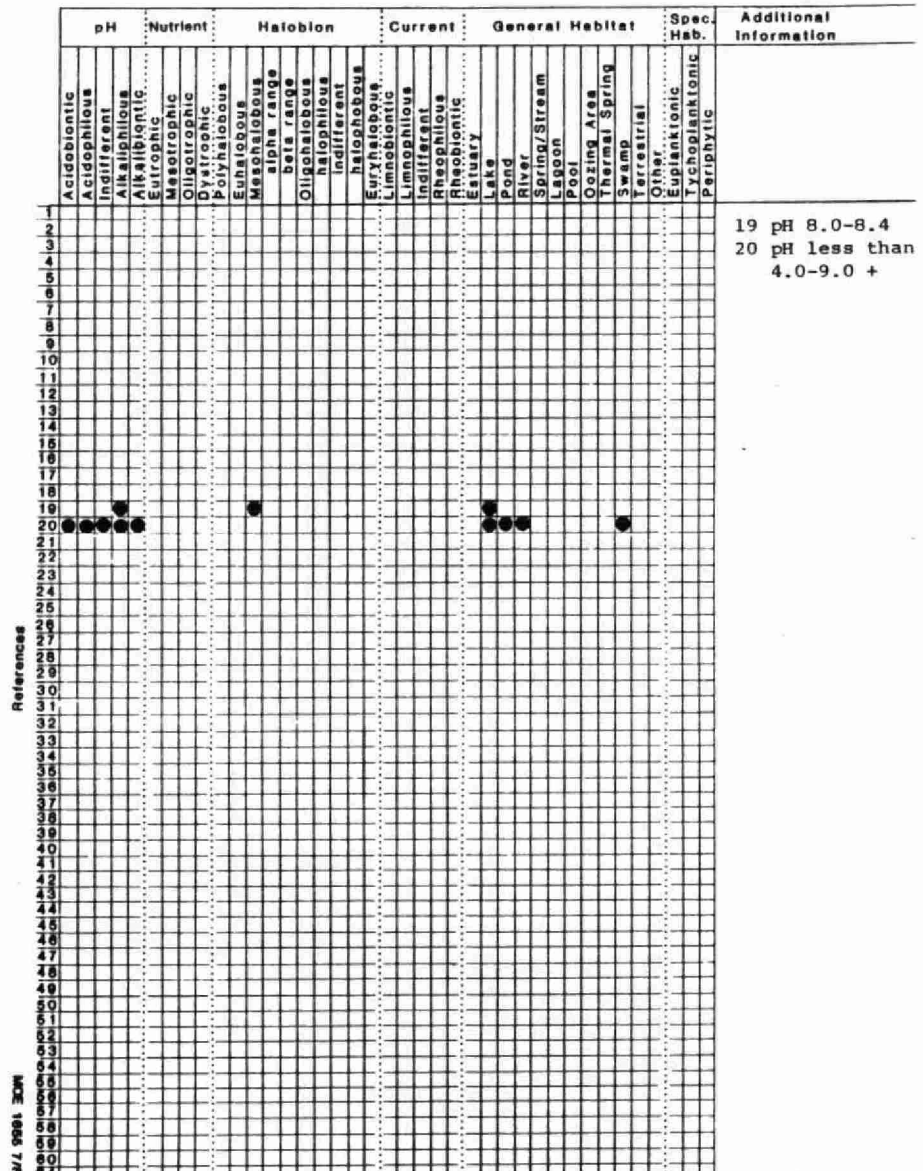


19 pH 6.5-7.9
8.5 +
20 pH 7.3

Ministry of the Environment
Ontario

Taxon Navicula digitoradiata (Greg.) Ralfs var. digitoradiata

Synonym



19 pH 8.0-8.4
20 pH less than
4.0-9.0 +

Ministry of the Environment
Ontario

Taxon Navicula digitoradiata f. rostrata Hust.

Synonym

pH						Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic		Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula digitoradiata var. elliptica (Østr.)

Synonym

pH						Nutrient				Halobion								Current					General Habitat									Spec. Hab.			Additional information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic		Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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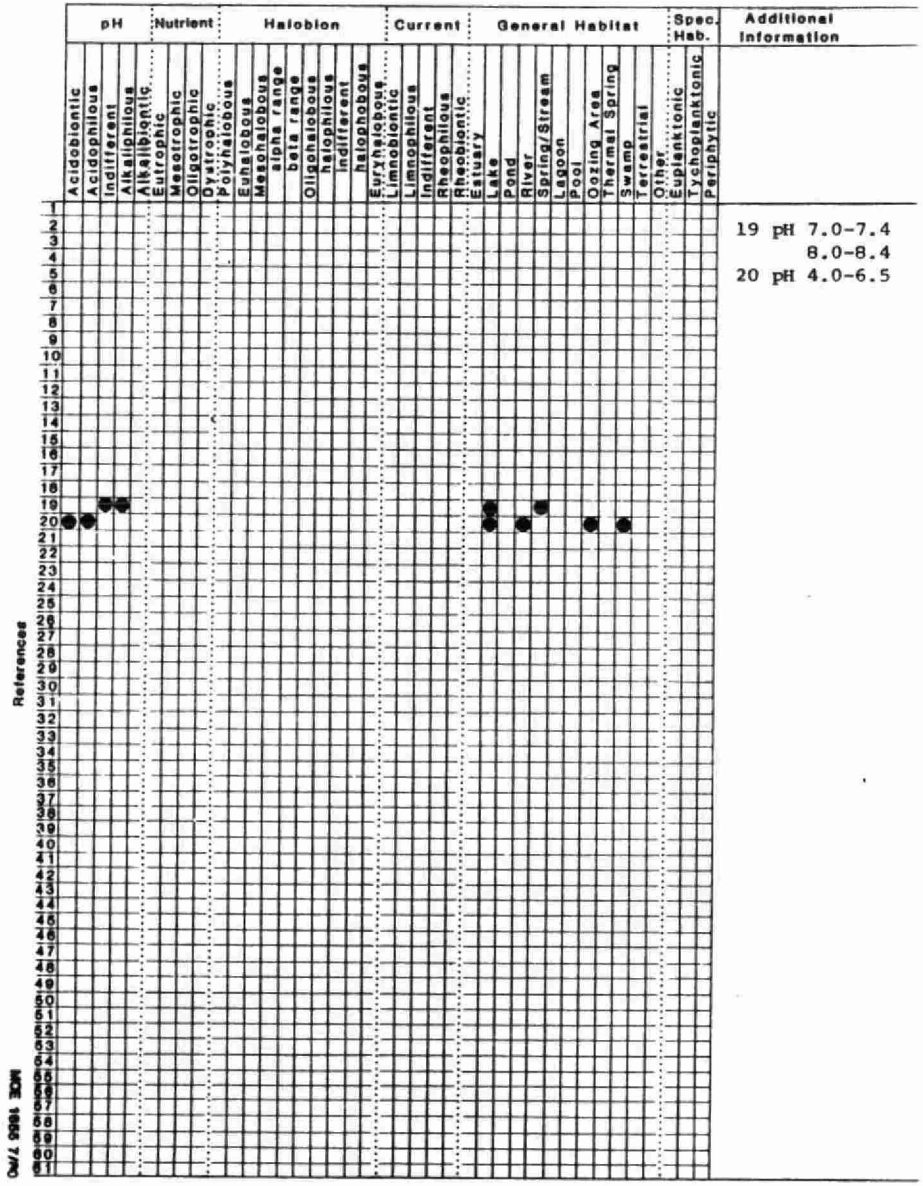
References

MOE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula digna Hust.

Synonym



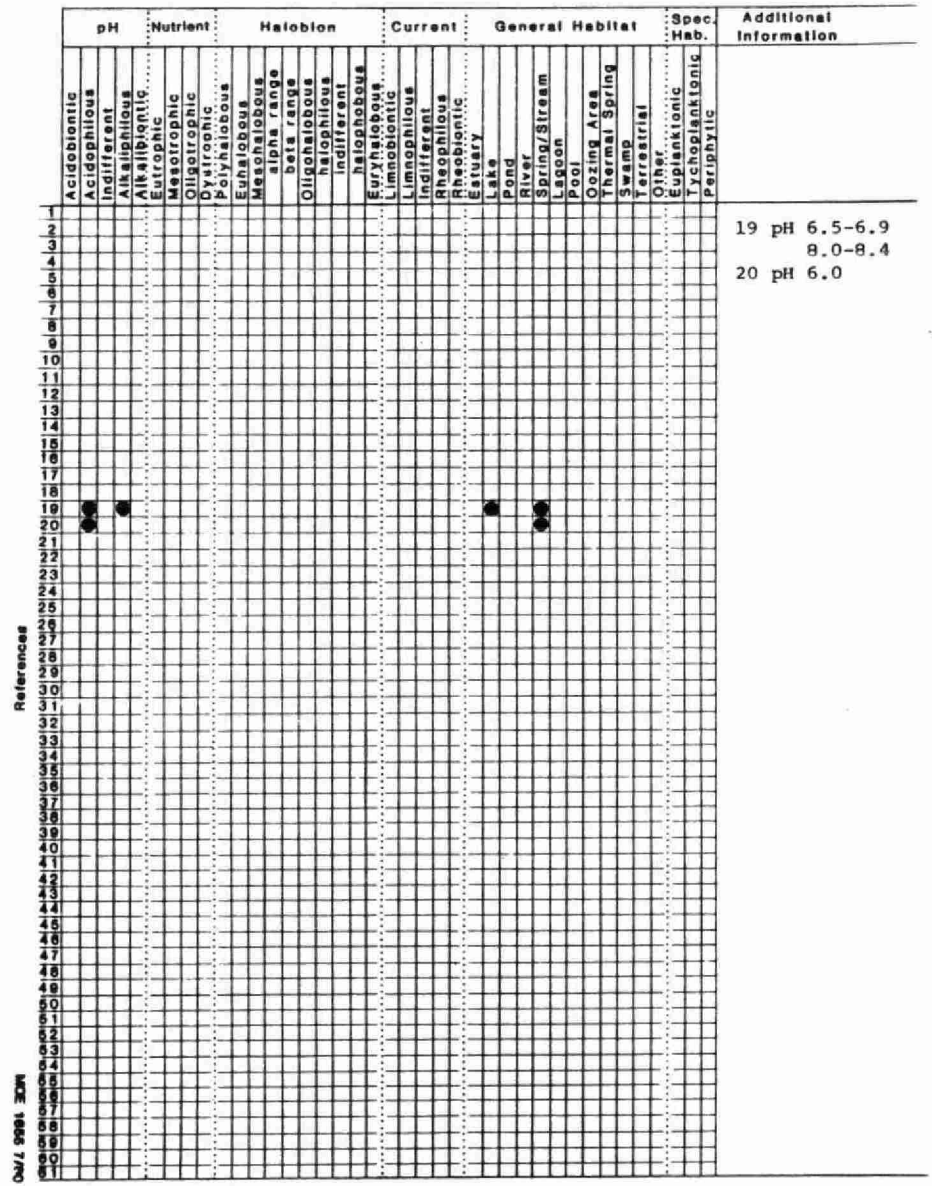
Additional Information

19 pH 7.0-7.4
8.0-8.4
20 pH 4.0-6.5

Ministry of the Environment
Ontario

Taxon Navicula disjuncta Hust.

Synonym



Additional Information

19 pH 6.5-6.9
8.0-8.4
20 pH 6.0

Ministry of the Environment
Ontario

Taxon Navicula disjuncta f. anglica Hust.

Synonym

	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Navicula dismutica Hust.

Synonym

	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Navicula elegans W. Sm.

Synonym Navicula elegans var. cuspidata Cl.

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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48 fresh to brackish water

MOE 1986 7/PO

Ministry of the Environment
Ontario

Taxon Navicula elginensis (Greg.) Ralfs

Synonym Navicula dicephala var. minor Grun.

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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8 pH optimum 7.5-7.8

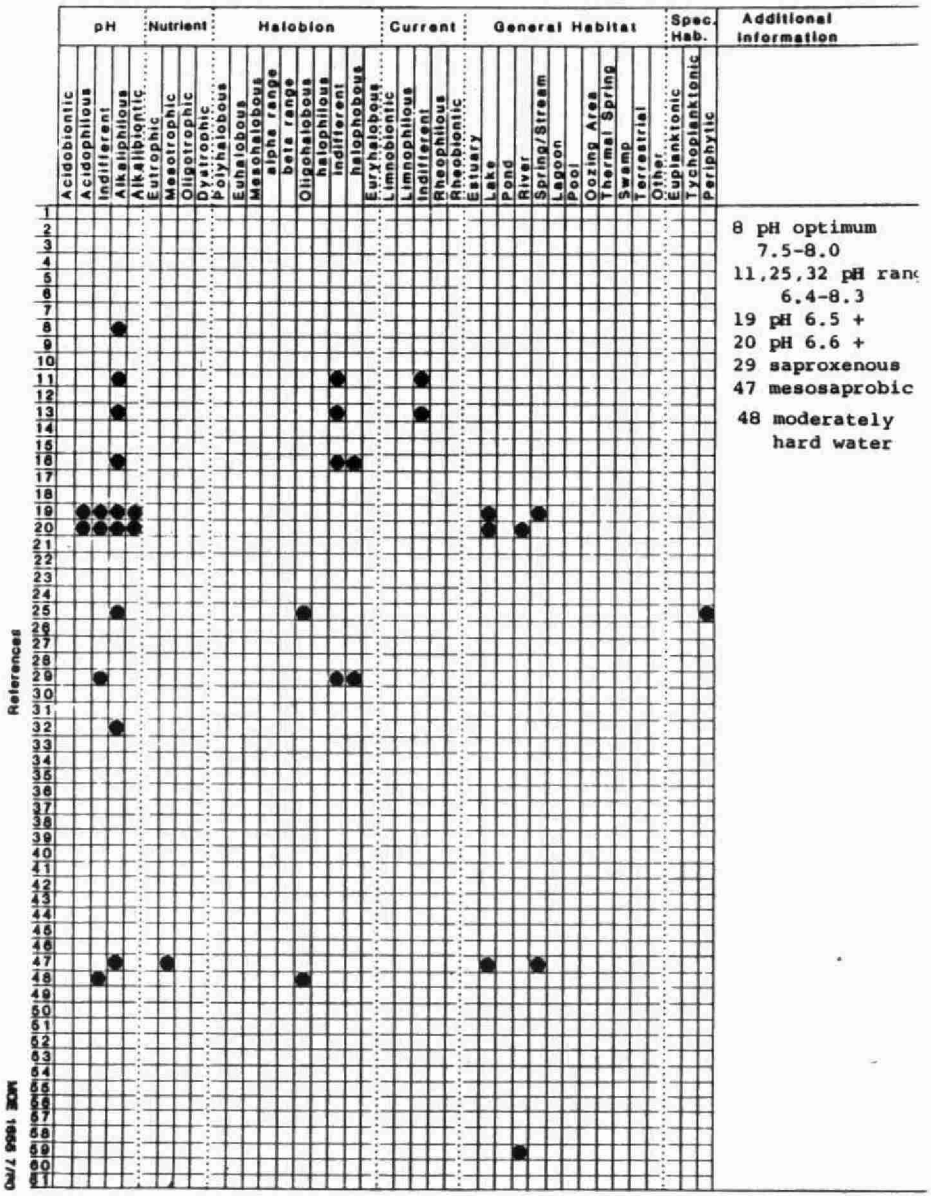
48 tolerant of a wide range of conditions in fresh to slightly brackish water

MOE 1986 7/PO

Ministry of the Environment
Ontario

Taxon Navicula exigua Greg. ex Grun. var. exigua

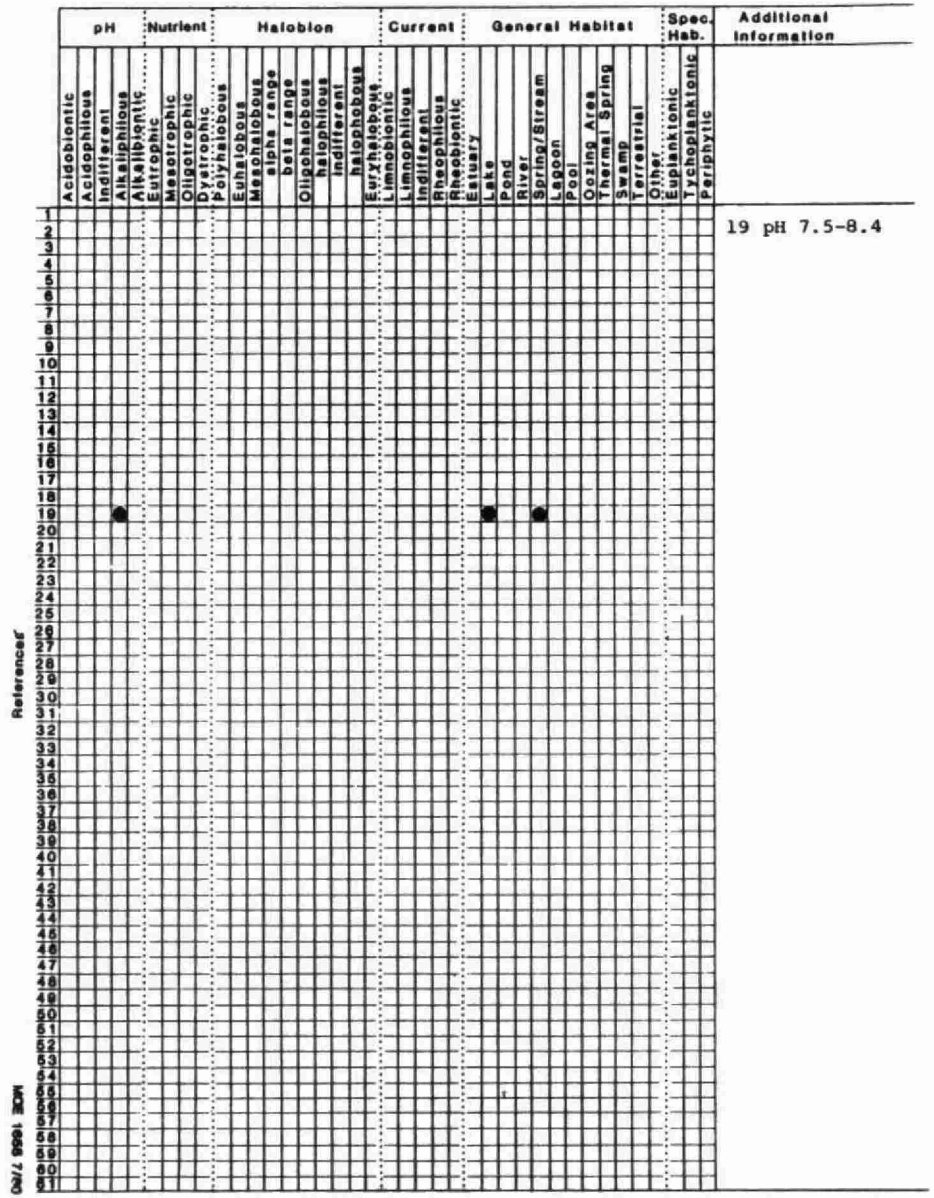
Synonym



Ministry of the Environment
Ontario

Taxon Navicula exigua var. signata Hust.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula explanata Hust. var. explanata

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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NODE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula explanata var. lanceolata Foged

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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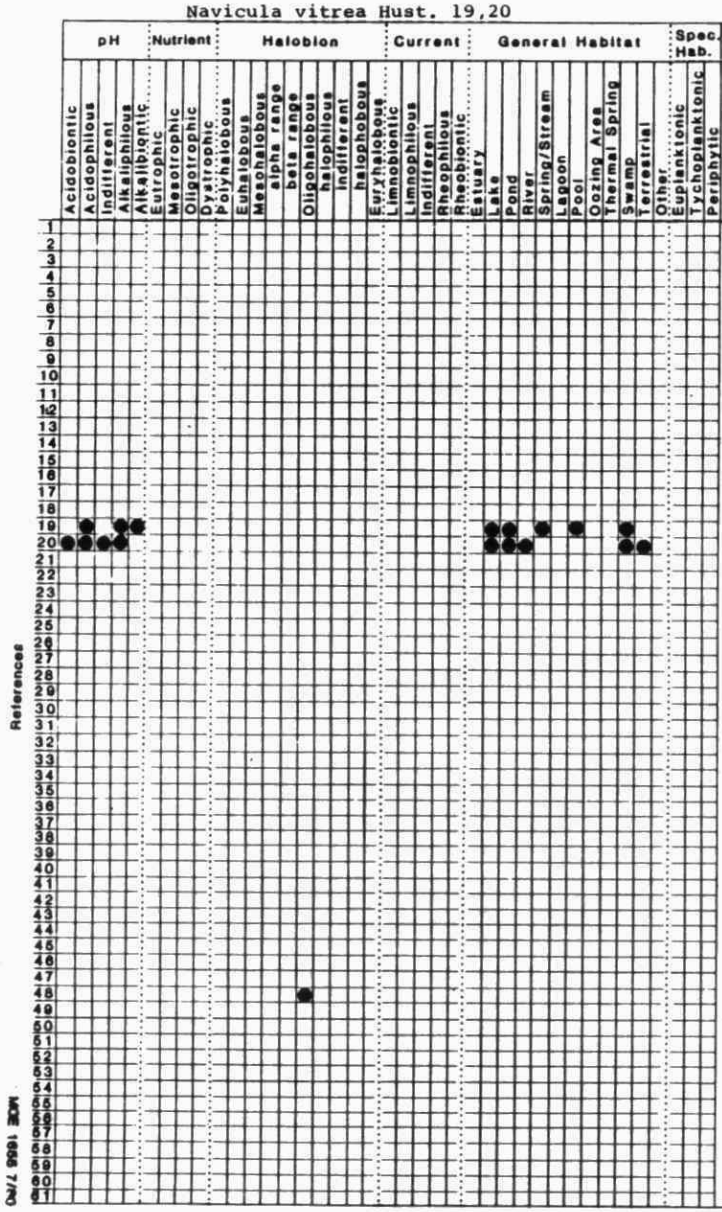
NODE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula festiva Krasske

Synonym Frustulia vitrea Østr.

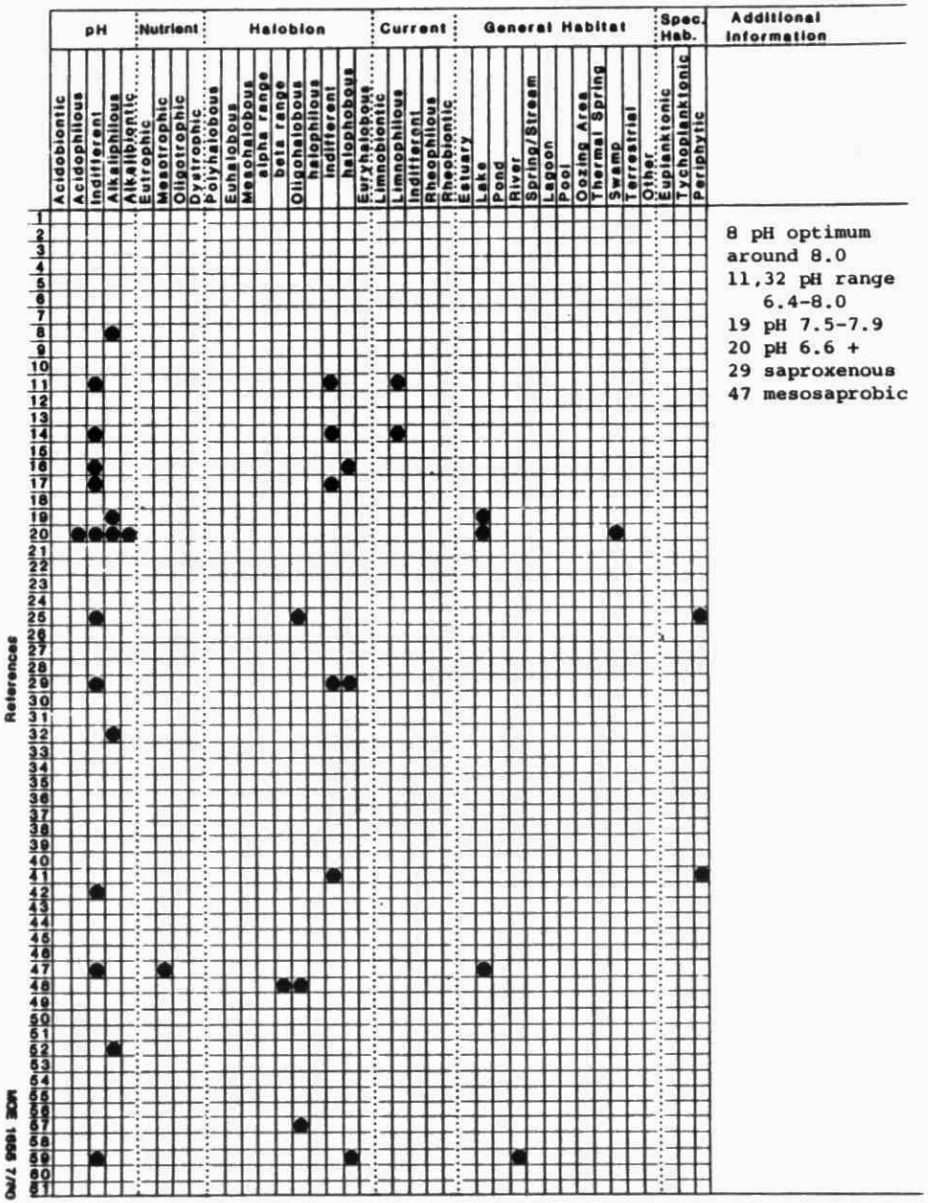
Navicula vitrea Hust. 19,20



Ministry of the Environment
Ontario

Taxon Navicula gastrum (Ehr.) Kutz.

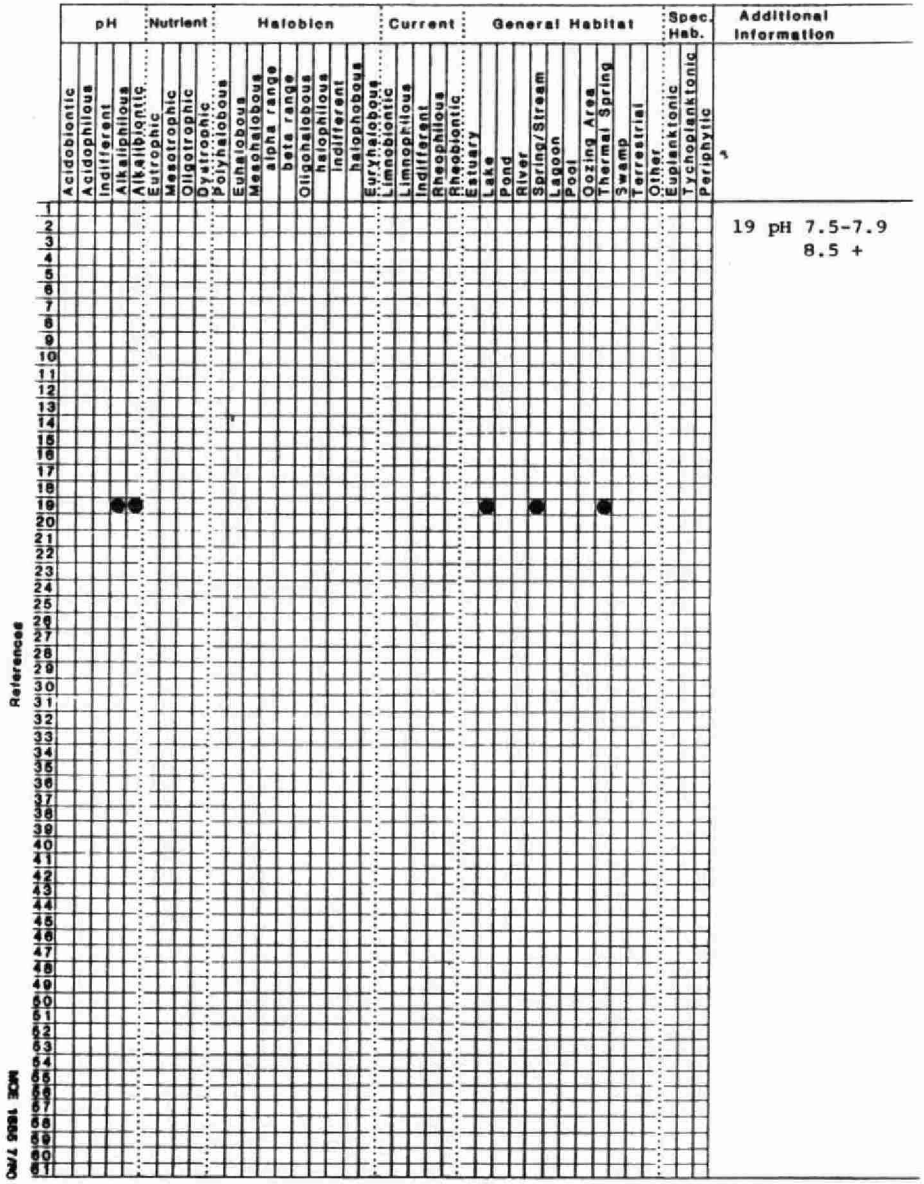
Synonym



Ministry of the Environment
Ontario

Taxon Navicula gibbula Cl.

Synonym



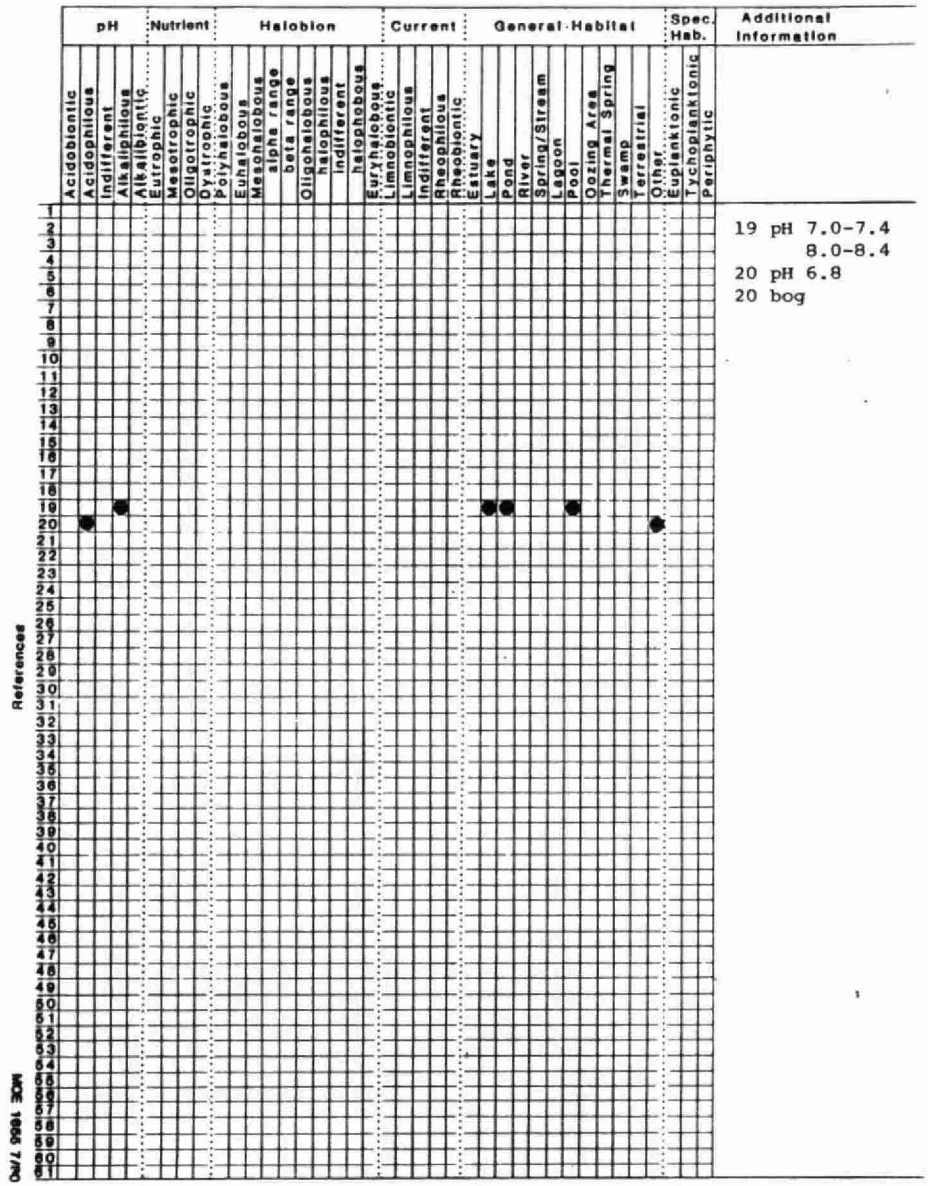
Additional Information

19 pH 7.5-7.9
8.5 +

Ministry of the Environment
Ontario

Taxon Navicula globosa Meist.

Synonym



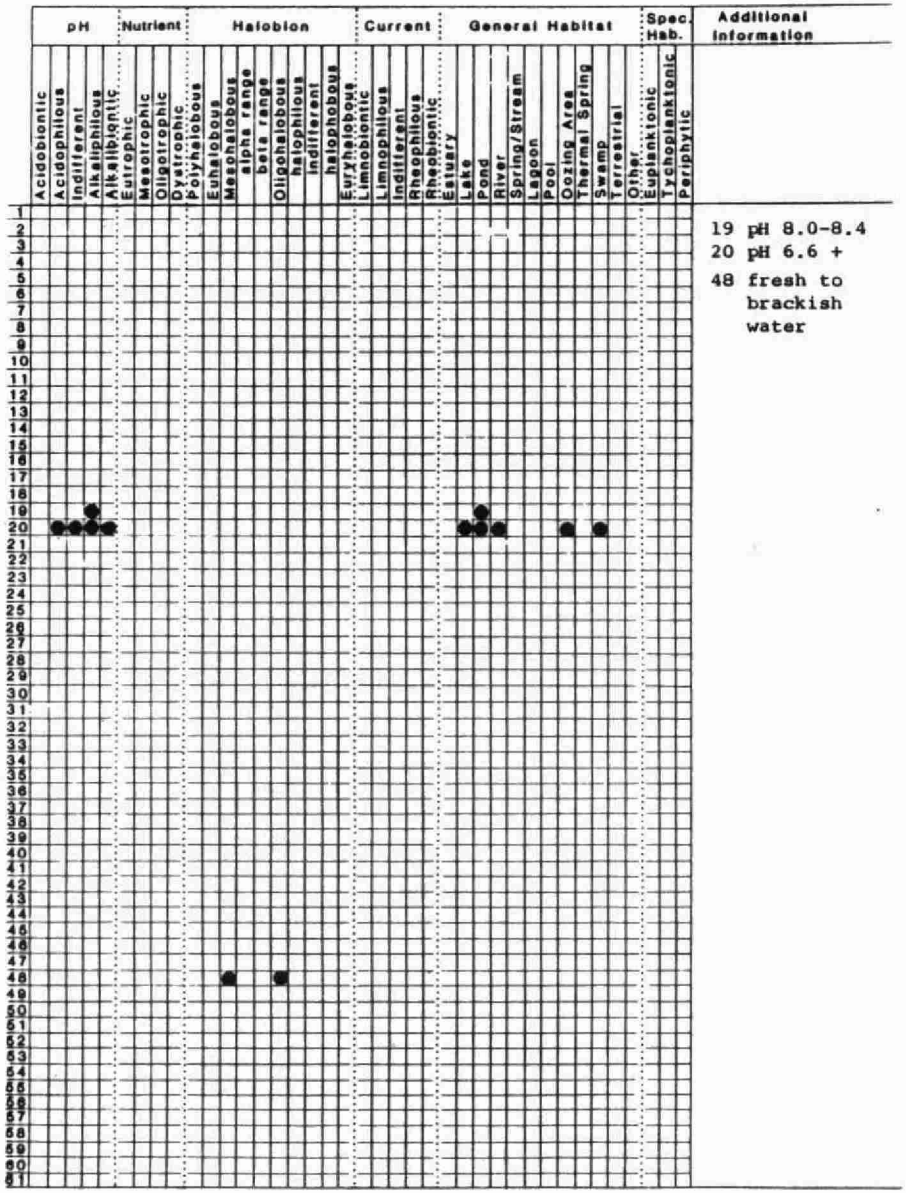
Additional Information

19 pH 7.0-7.4
8.0-8.4
20 pH 6.8
20 bog

Ministry of the Environment
Ontario

Taxon Navicula gottlandica Grun.

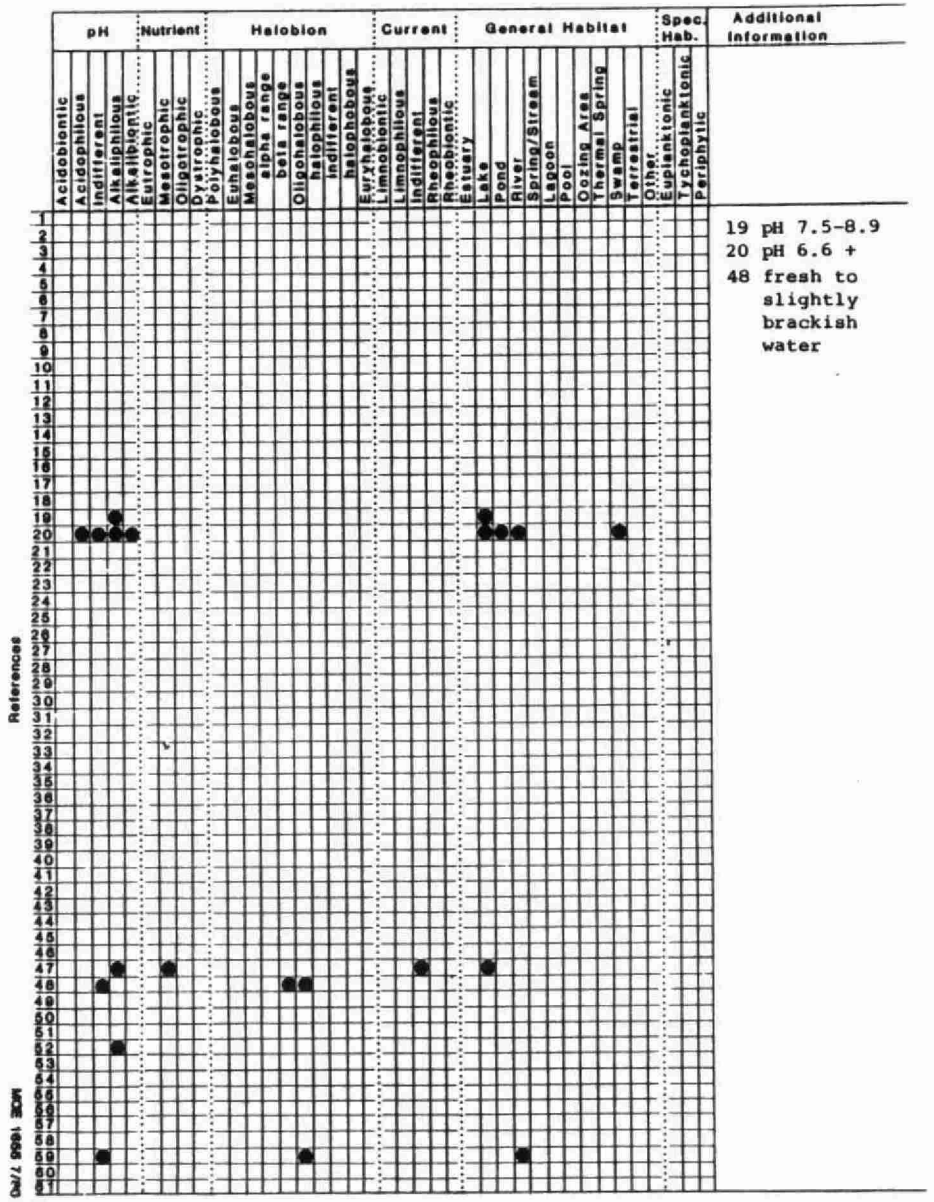
Synonym



Ministry of the Environment
Ontario

Taxon Navicula graciloides A. Mayer

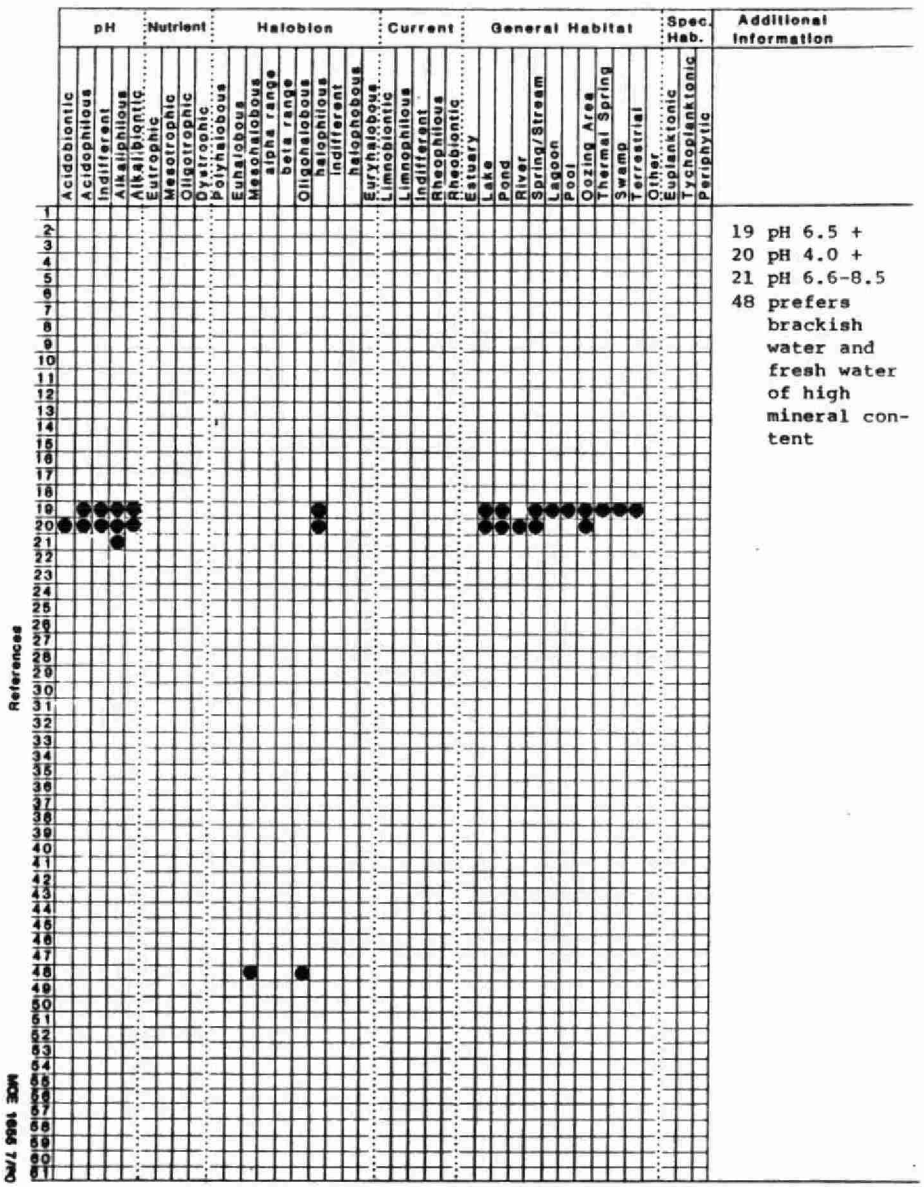
Synonym



Ministry of the Environment
Ontario

Taxon Navicula gregaria Donk

Synonym



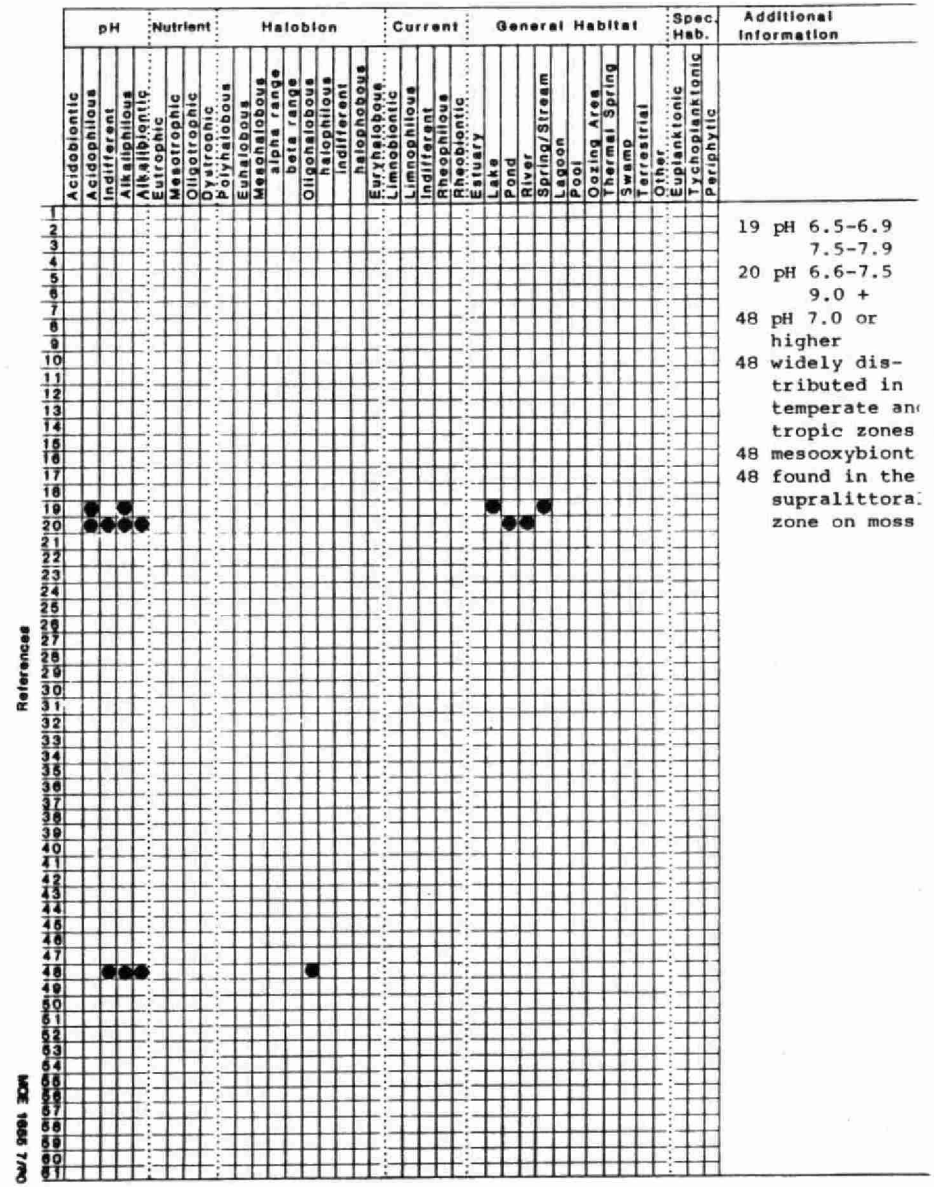
Additional information

19 pH 6.5 +
20 pH 4.0 +
21 pH 6.6-8.5
48 prefers brackish water and fresh water of high mineral content

Ministry of the Environment
Ontario

Taxon Navicula grimmei Krasske

Synonym



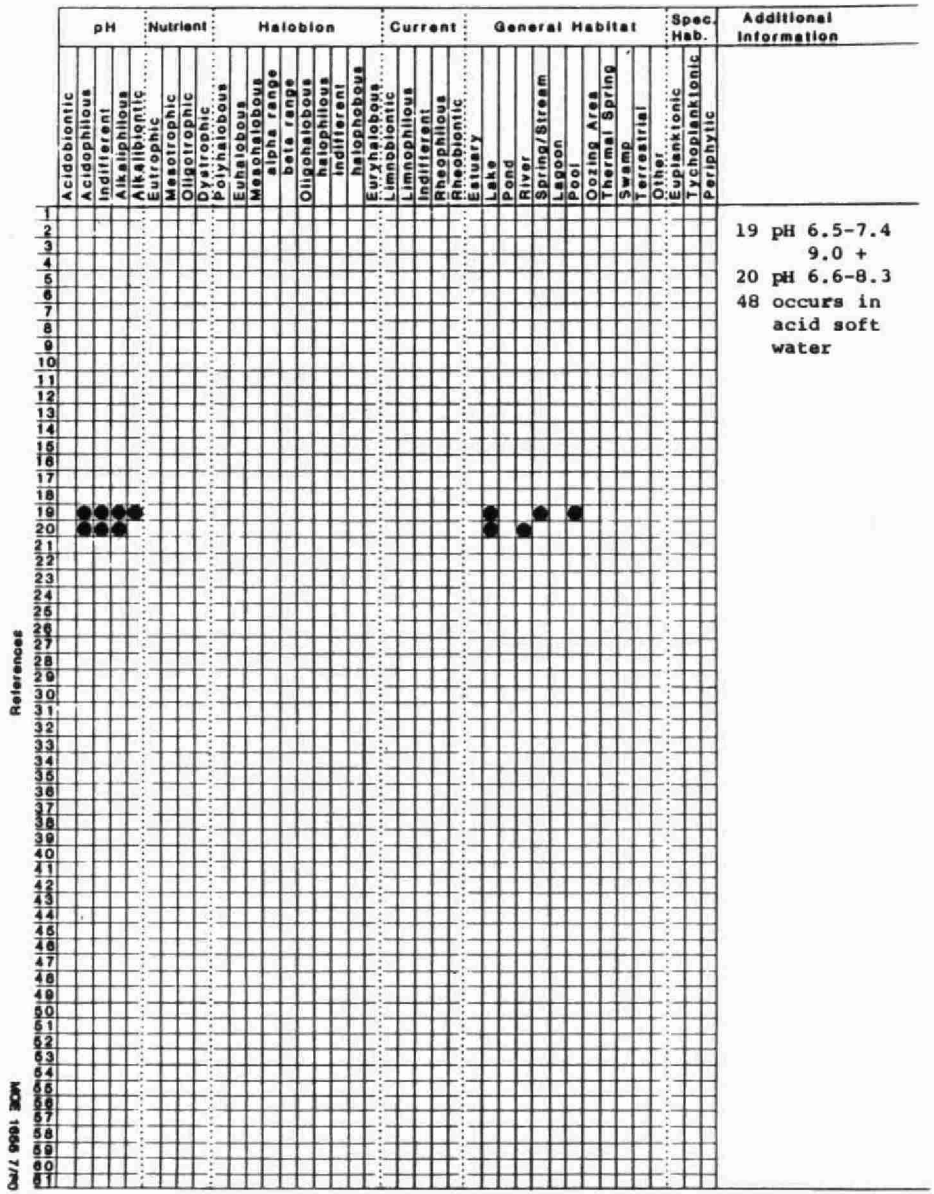
Additional information

19 pH 6.5-6.9
7.5-7.9
20 pH 6.6-7.5
9.0 +
48 pH 7.0 or higher
48 widely distributed in temperate and tropic zones
48 mesooxybiont
48 found in the supralittoral zone on moss

Ministry of the Environment
Ontario

Taxon Navicula gysingensis Foged

Synonym

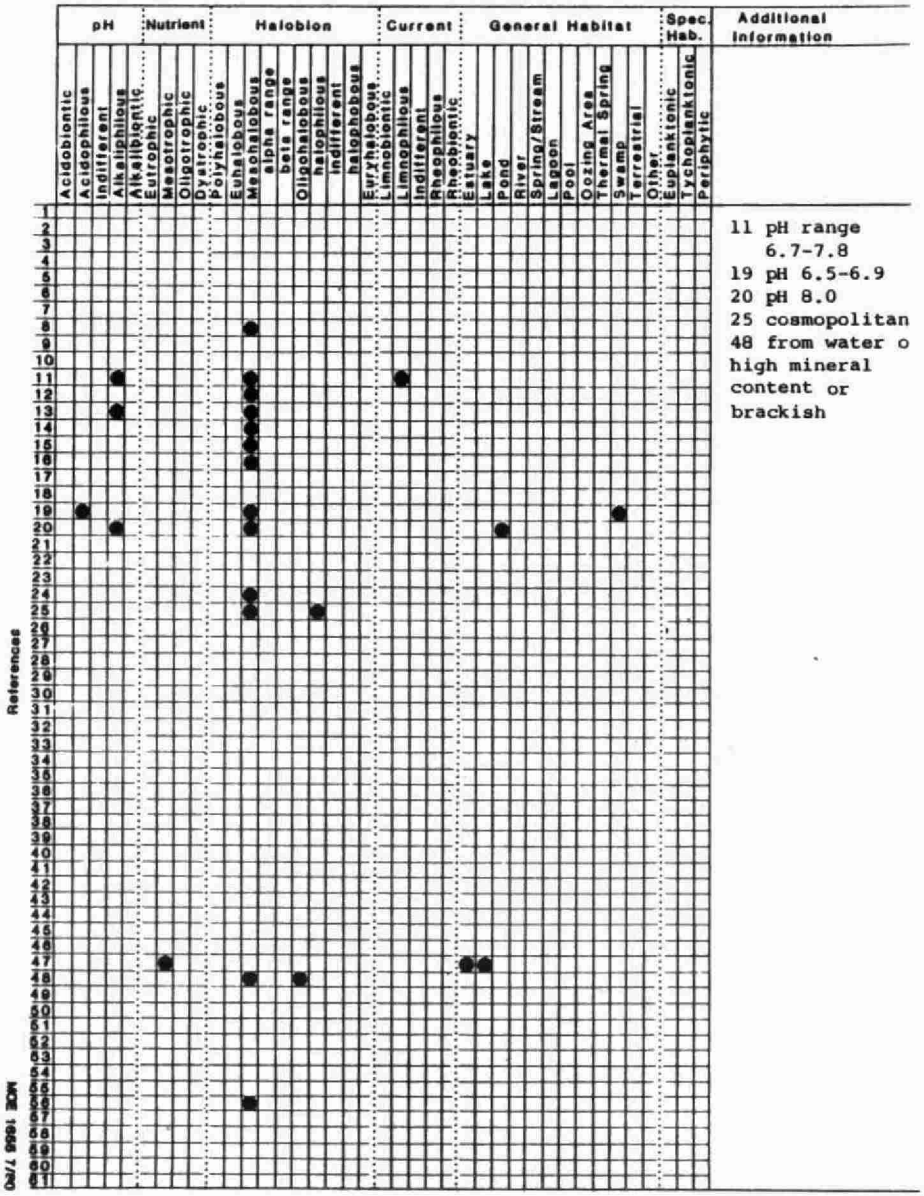


19 pH 6.5-7.4 9.0 +
20 pH 6.6-8.3
48 occurs in acid soft water

Ministry of the Environment
Ontario

Taxon Navicula halophila (Grun.) Cl.

Synonym Navicula cuspidata var. halophila Grun.

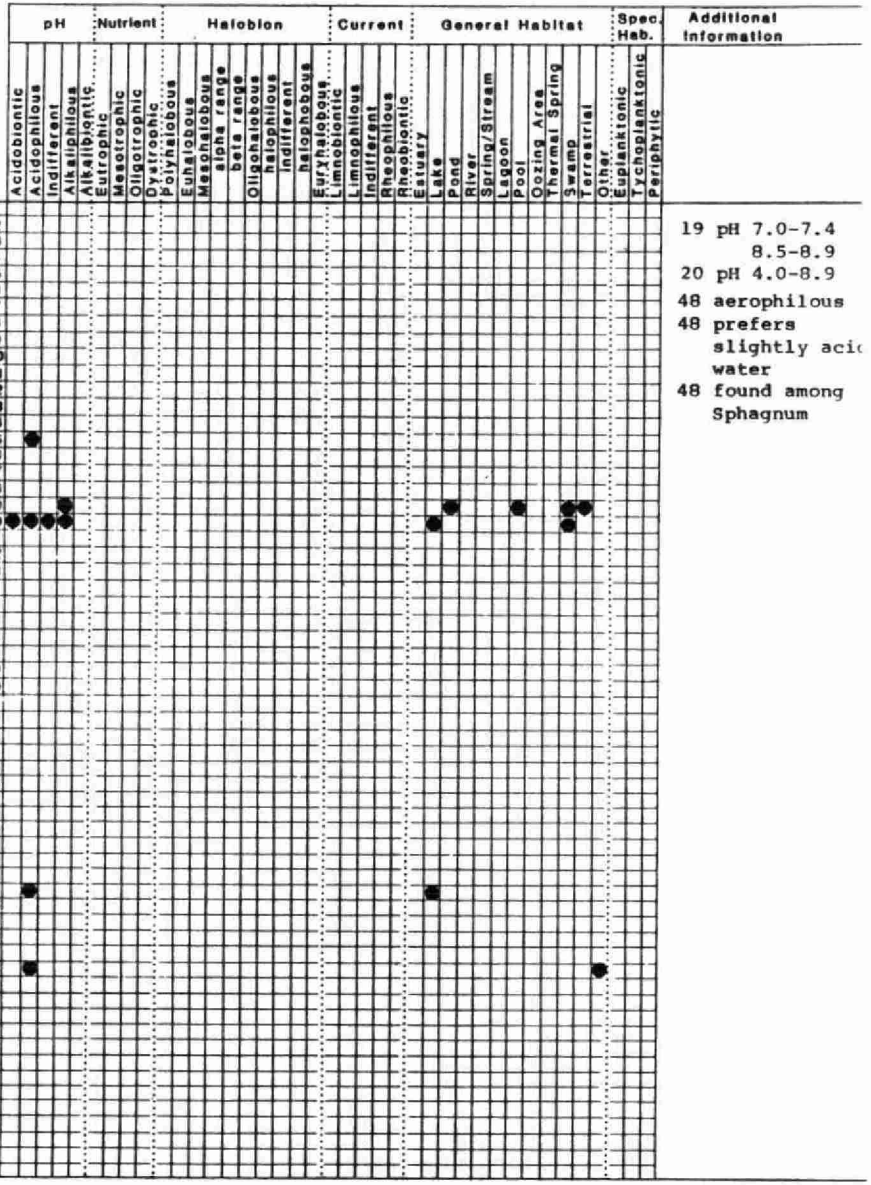


11 pH range 6.7-7.8
19 pH 6.5-6.9
20 pH 8.0
25 cosmopolitan
48 from water o high mineral content or brackish

Ministry of the Environment
Ontario

Taxon Navicula hassiaca Krasske

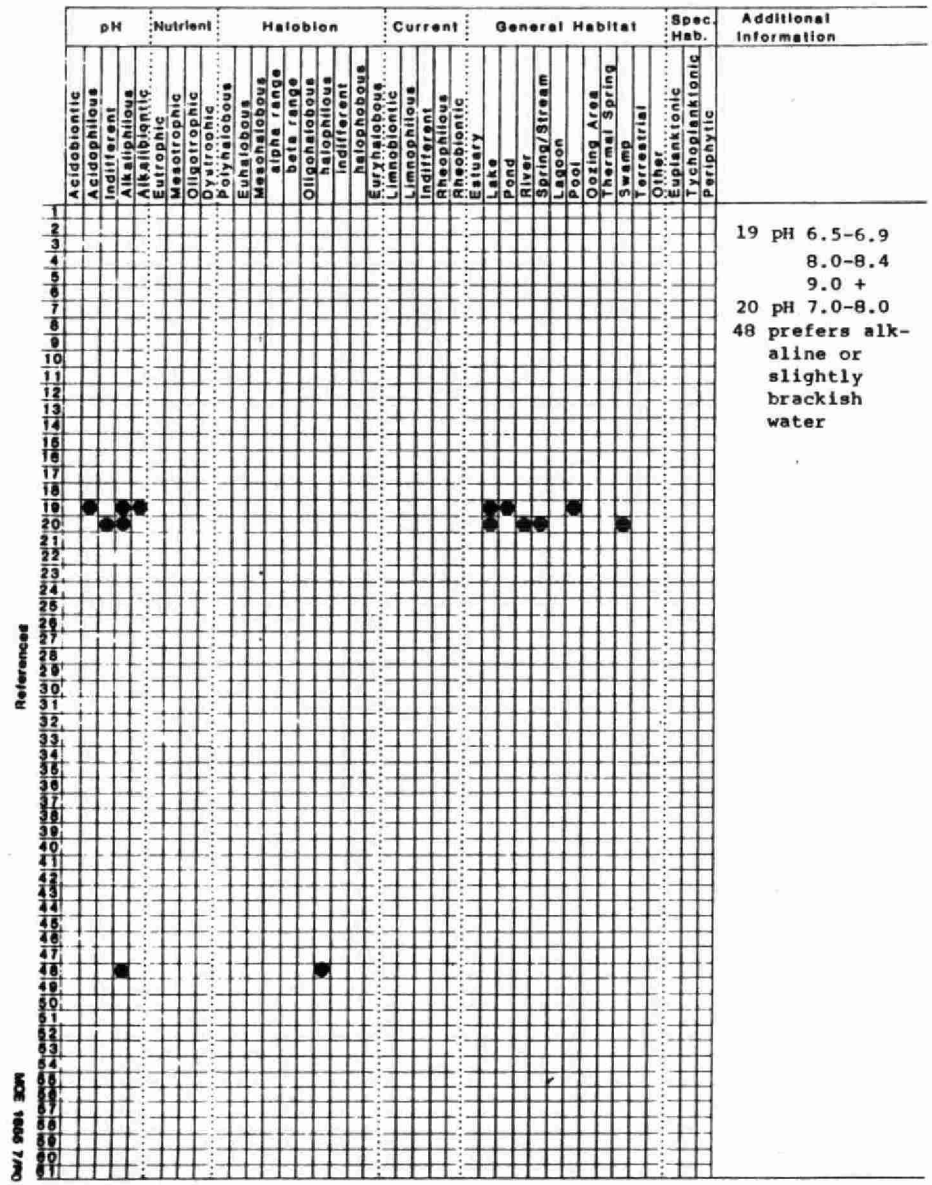
Synonym



Ministry of the Environment
Ontario

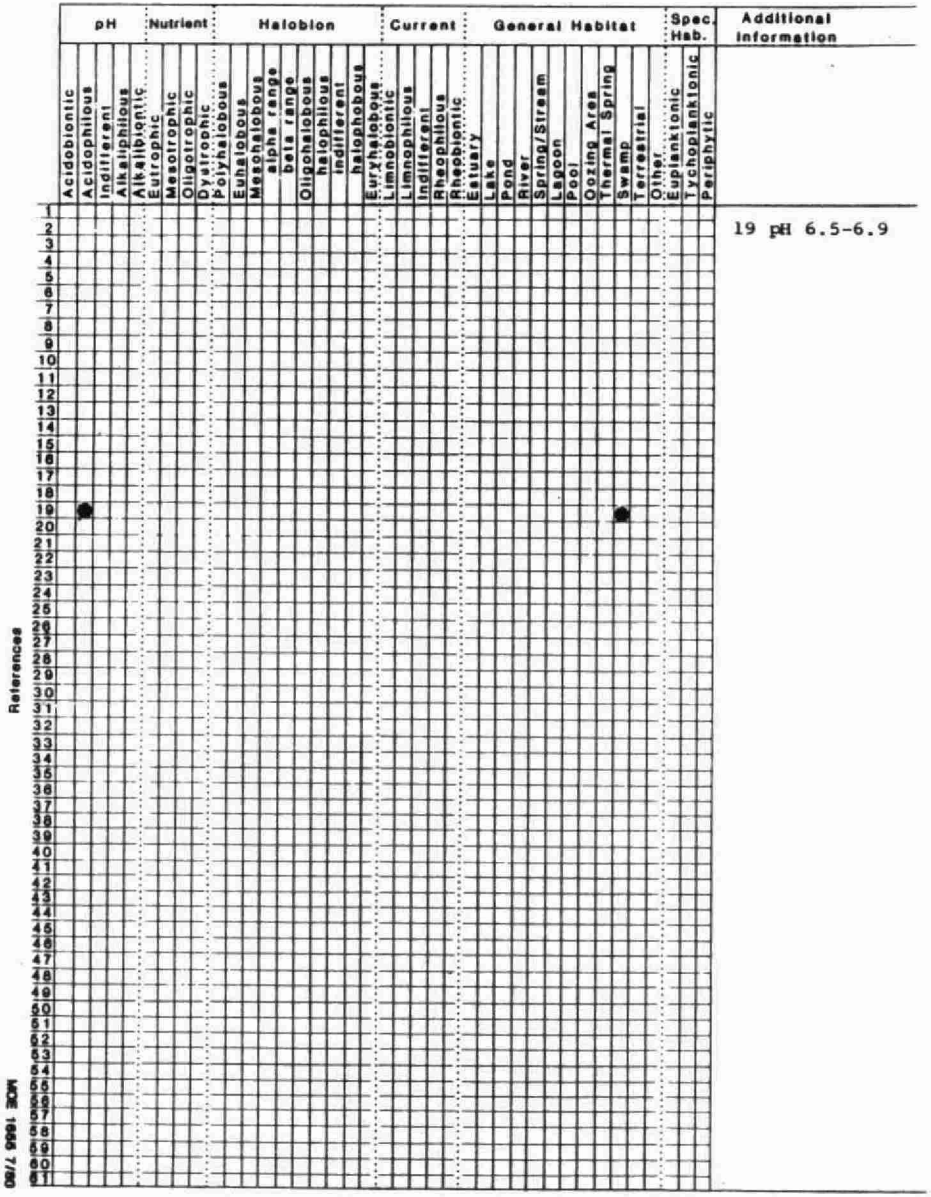
Taxon Navicula heufleri Grun.

Synonym Navicula cincta var. heufleri (Grun.) V. H.



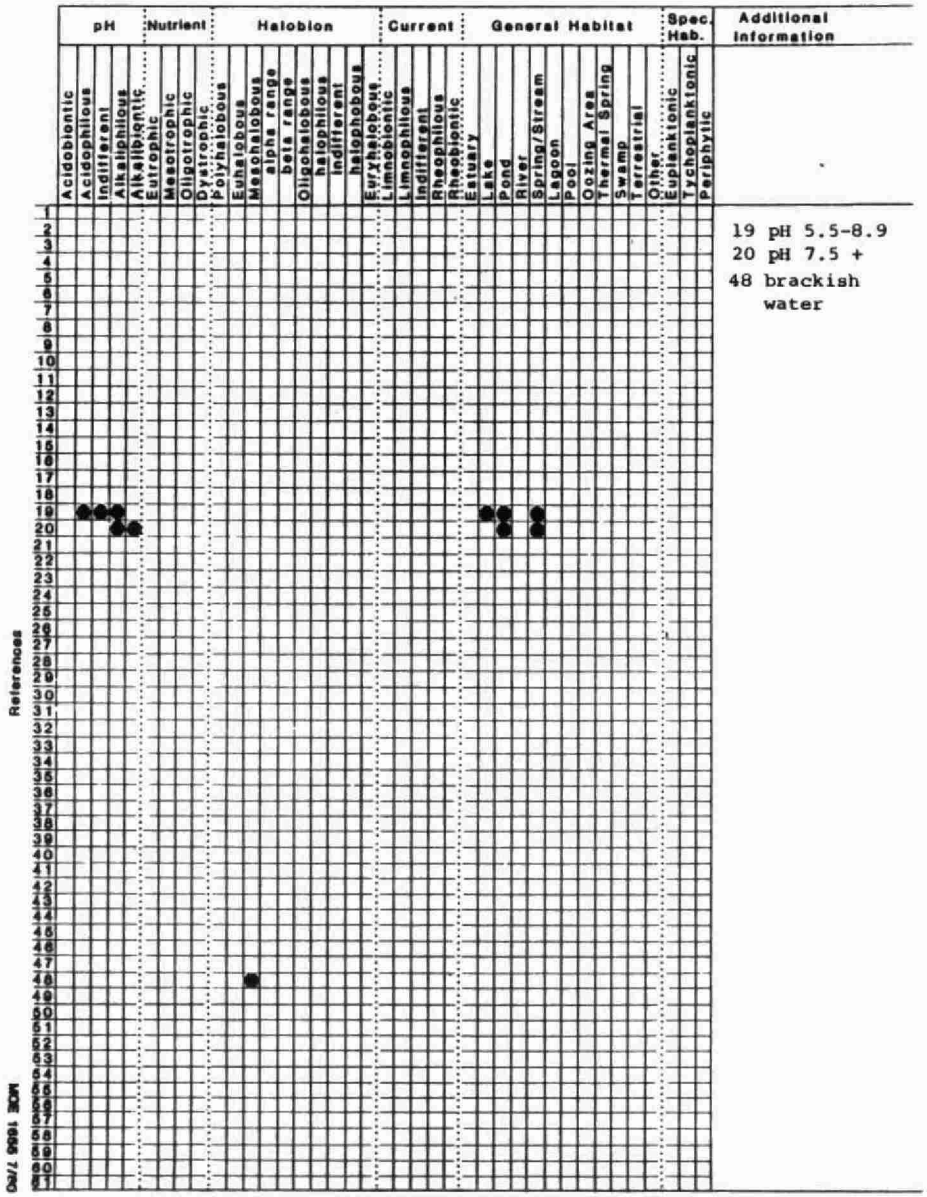
Taxon Navicula hungarica var. linearis Østr.

Synonym



Taxon Navicula hustedtii Krasske var. hustedtii

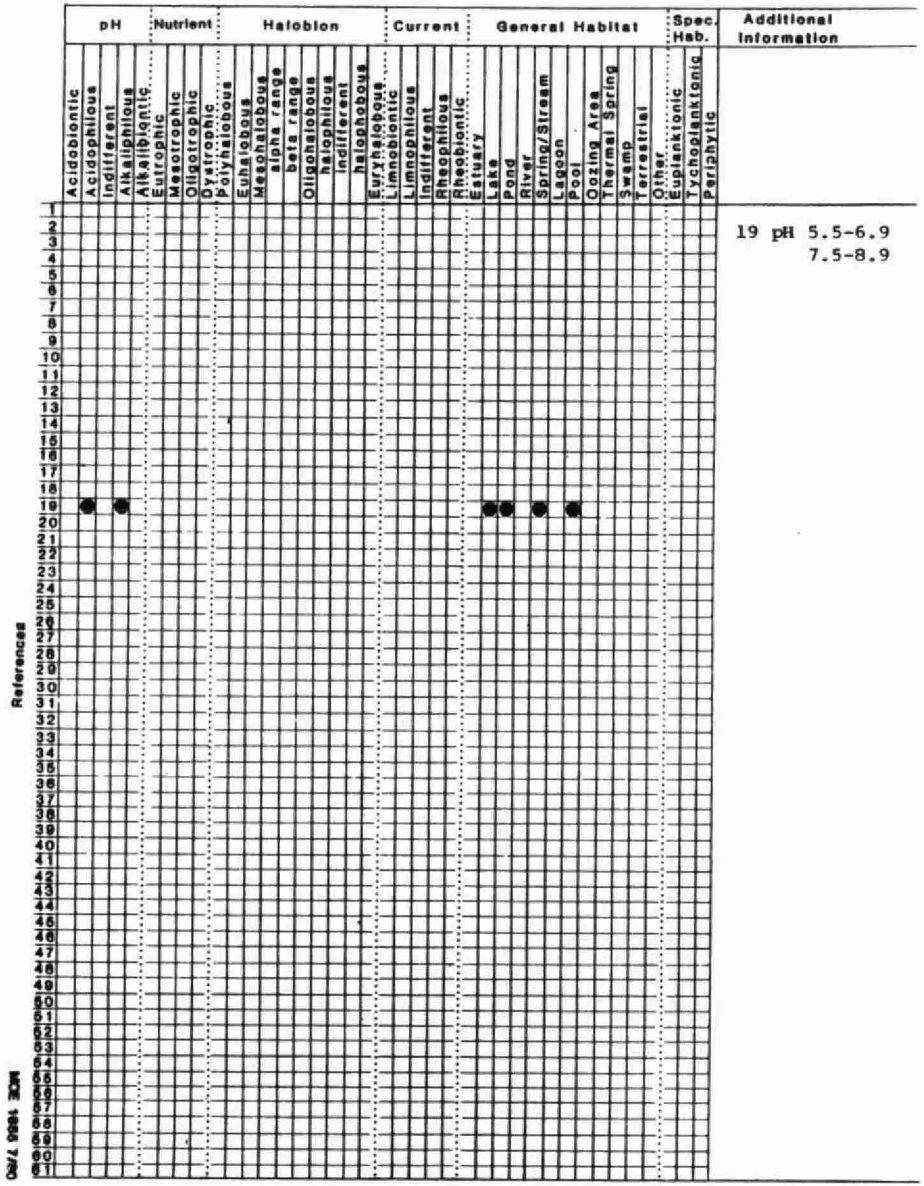
Synonym



Ministry of the Environment
Ontario

Taxon Navicula hustedtii var. obutsa Hust.

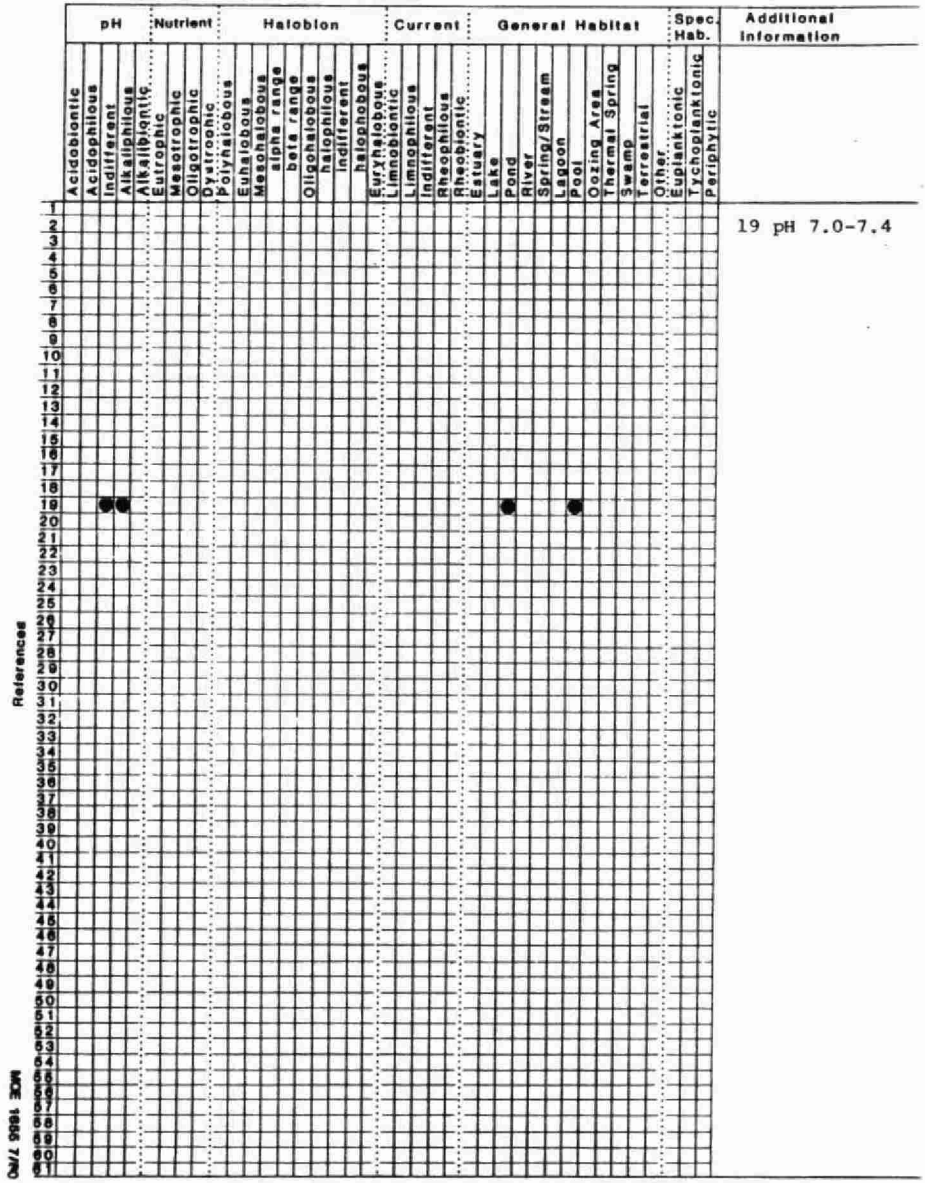
Synonym



Ministry of the Environment
Ontario

Taxon Navicula ignota Krasske

Synonym



Ministry of the Environment
Ontario

Taxon Navicula impexa Hust.

Synonym

	pH					Nutrient				Halobion								Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

20 pH 6.0

MOE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula incognita Krasske

Synonym

	pH					Nutrient				Halobion								Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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19 pH 7.0-7.4

MOE 1986 7/NO

Ministry of the Environment
Ontario

Taxon Navicula ingrata Krasske

Synonym

References	pH					Nutrient				Halobion								Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Navicula insociabilis Krasske

Synonym

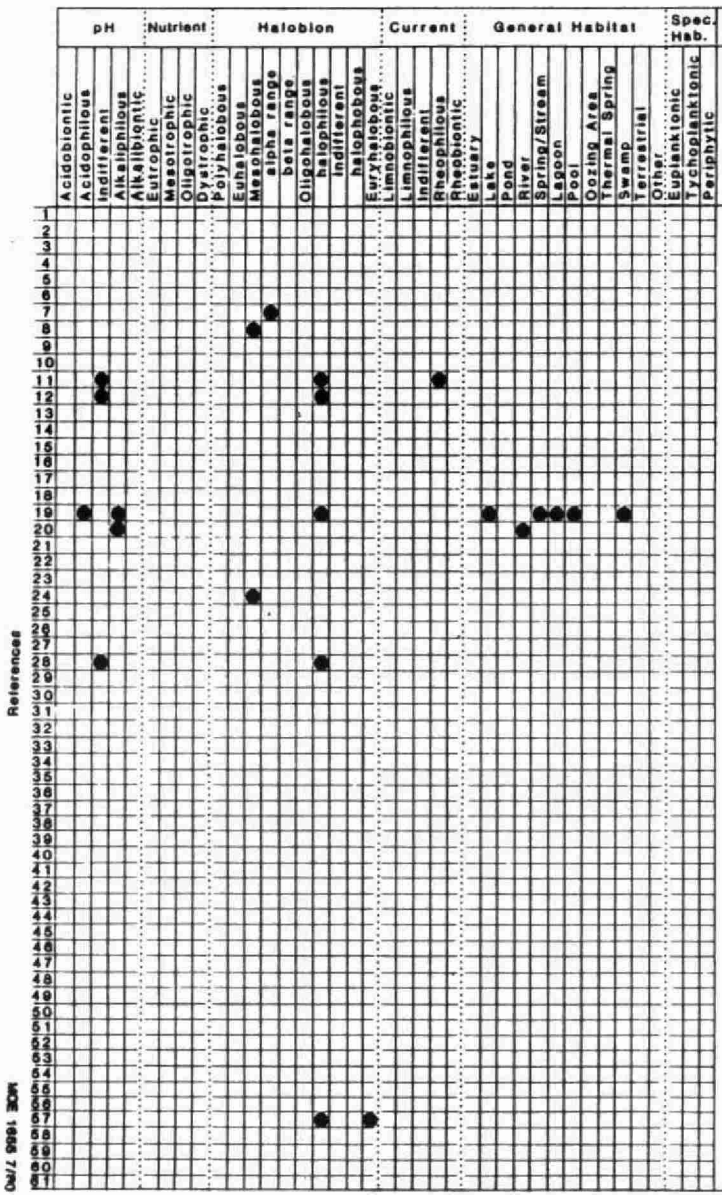
References	pH					Nutrient				Halobion								Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Navicula integra (W. Sm.) Ralfs

Synonym

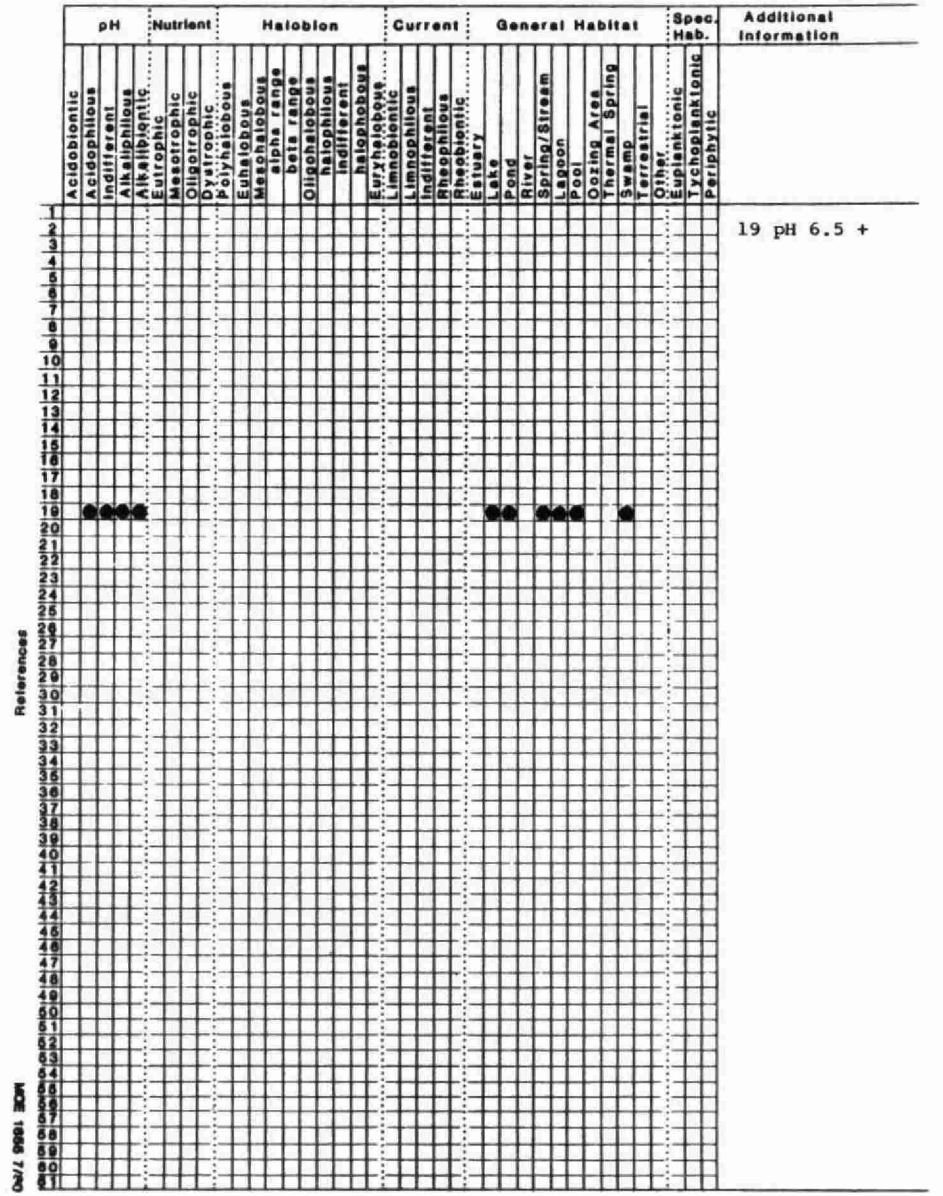


11 pH range 6.4-8.2
19 pH 6.5-6.9 8.0-8.9
20 pH 7.3
29 mesooxybiontic
48 seems to prefer water with high mineral content often found in polluted water

Ministry of the Environment
Ontario

Taxon Navicula interglacialis Hust.

Synonym



19 pH 6.5 +

Ministry of the Environment
Ontario

Taxon Navicula jaernefeltii Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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DBC 7/86 NCE

Ministry of the Environment
Ontario

Taxon Navicula jentzschii Grun.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Navicula kotschyi Grun.

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Navicula kriegeri Krasske

Synonym

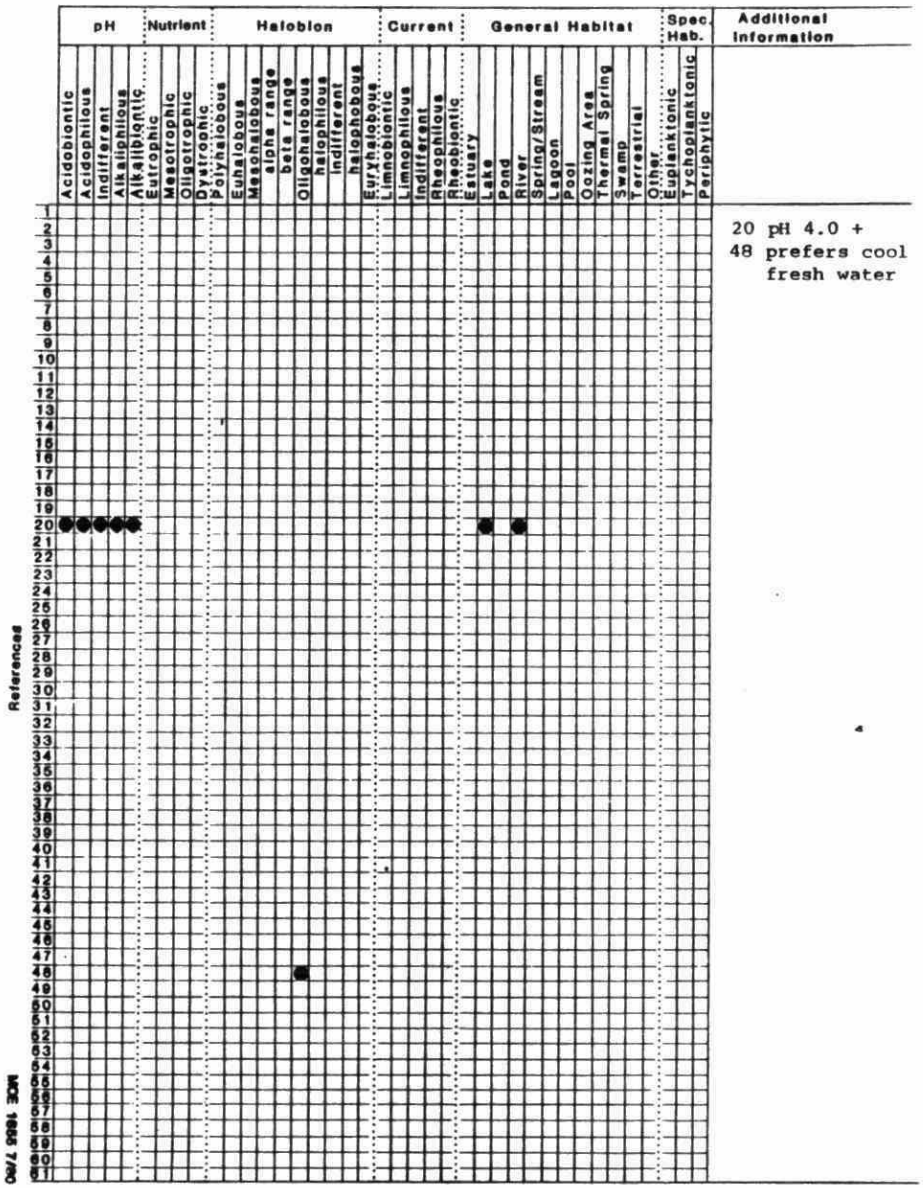
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	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1665 7/80

Ministry of the Environment
Ontario

Taxon Navicula lacustris Greg.

Synonym



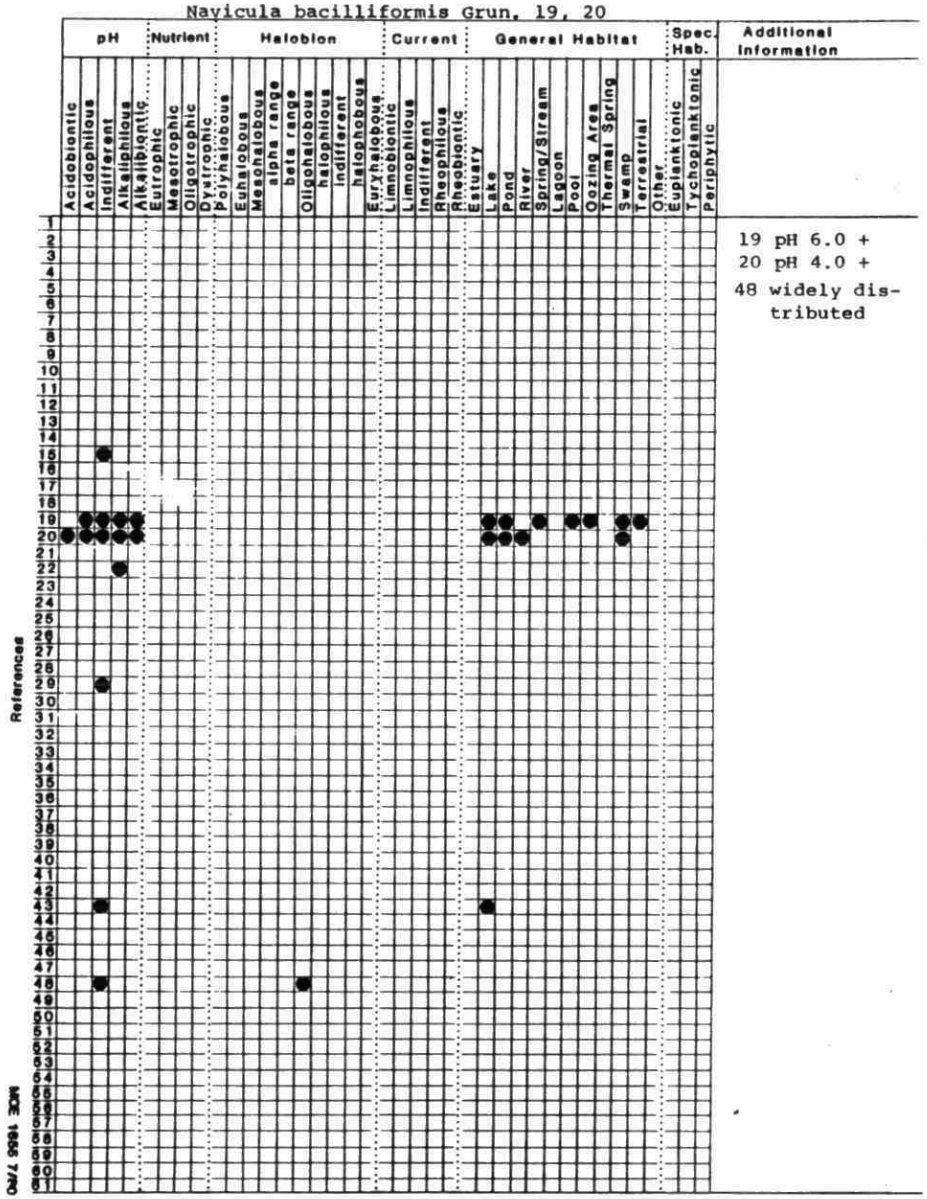
20 pH 4.0 +
48 prefers cool fresh water

Ministry of the Environment
Ontario

Taxon Navicula laevissima Kutz.

Synonym Navicula wittrockii Lag.

Navicula bacilliformis Grun, 19, 20

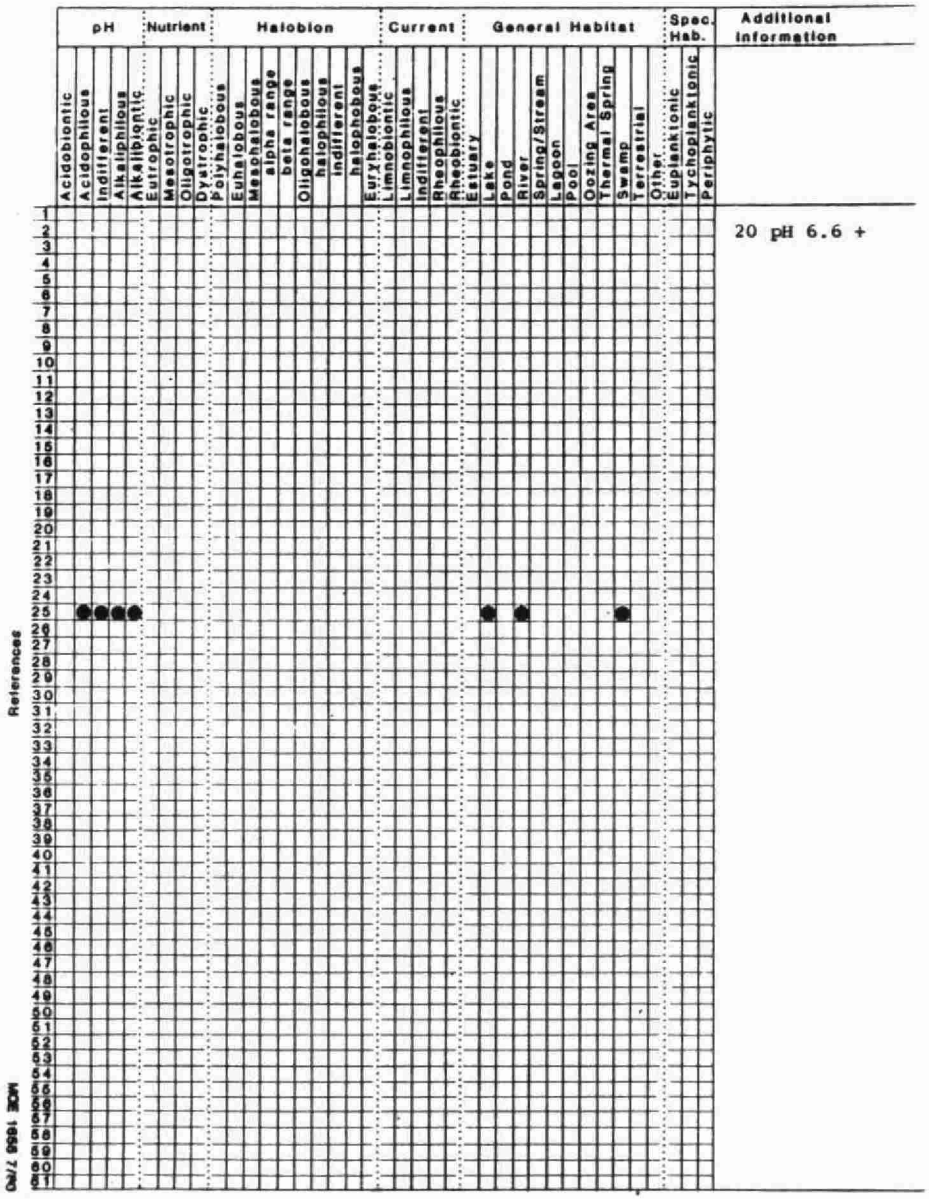


19 pH 6.0 +
20 pH 4.0 +
48 widely distributed

Ministry of the Environment
Ontario

Taxon Navicula lanceolata var. cymbula (Donk) Cl.

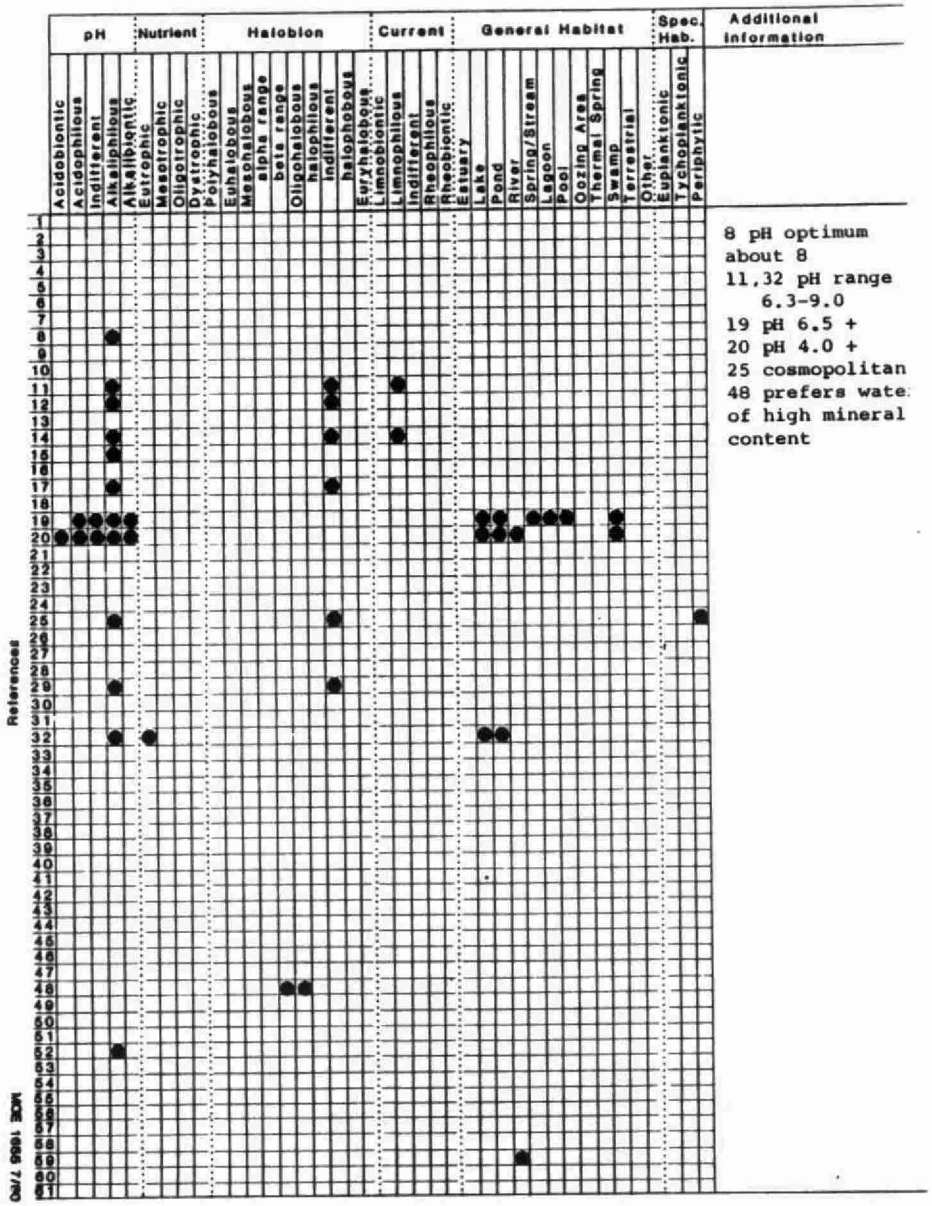
Synonym Navicula cymbula Donk



Ministry of the Environment
Ontario

Taxon Navicula lanceolata (Ag.) Kutz. var. lanceolata

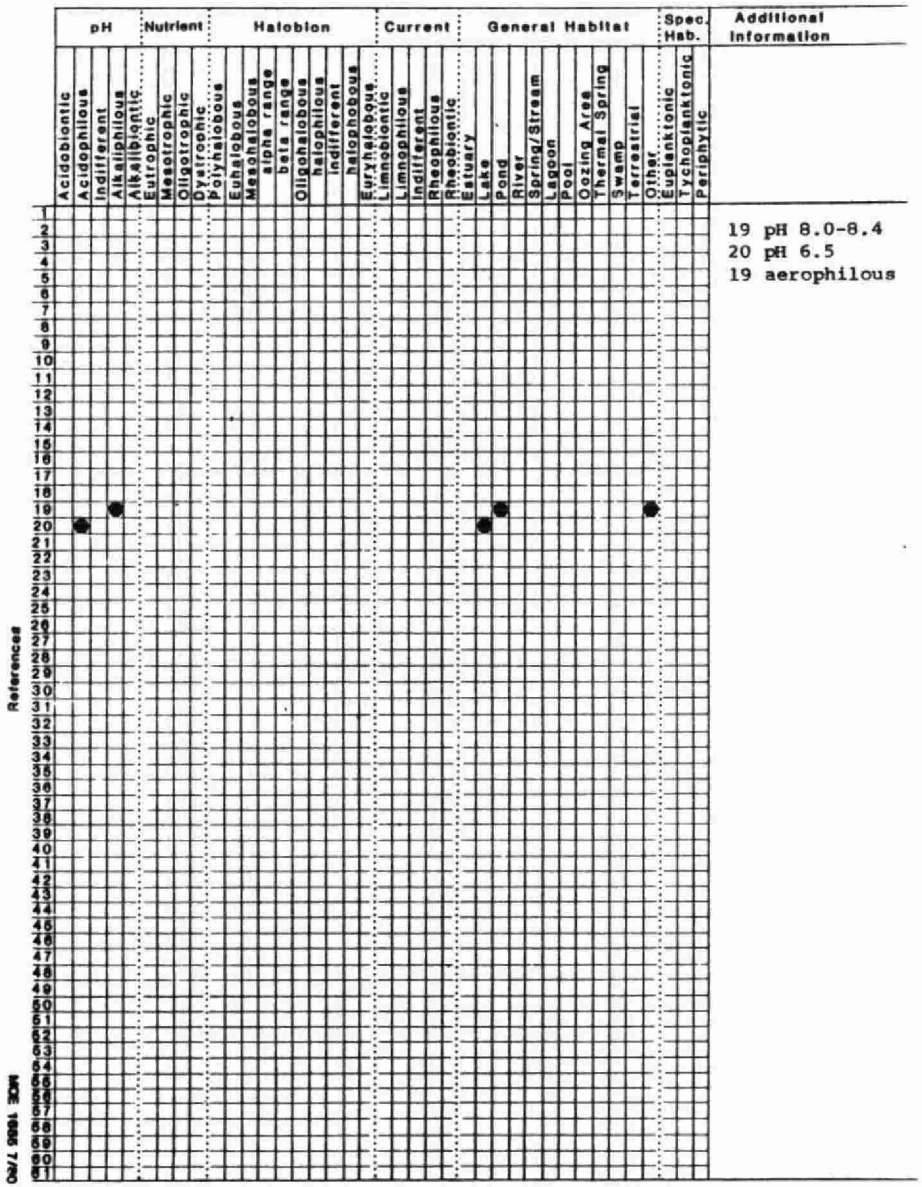
Synonym



Ministry of the Environment
Ontario

Taxon Navicula lapidosa Krasske

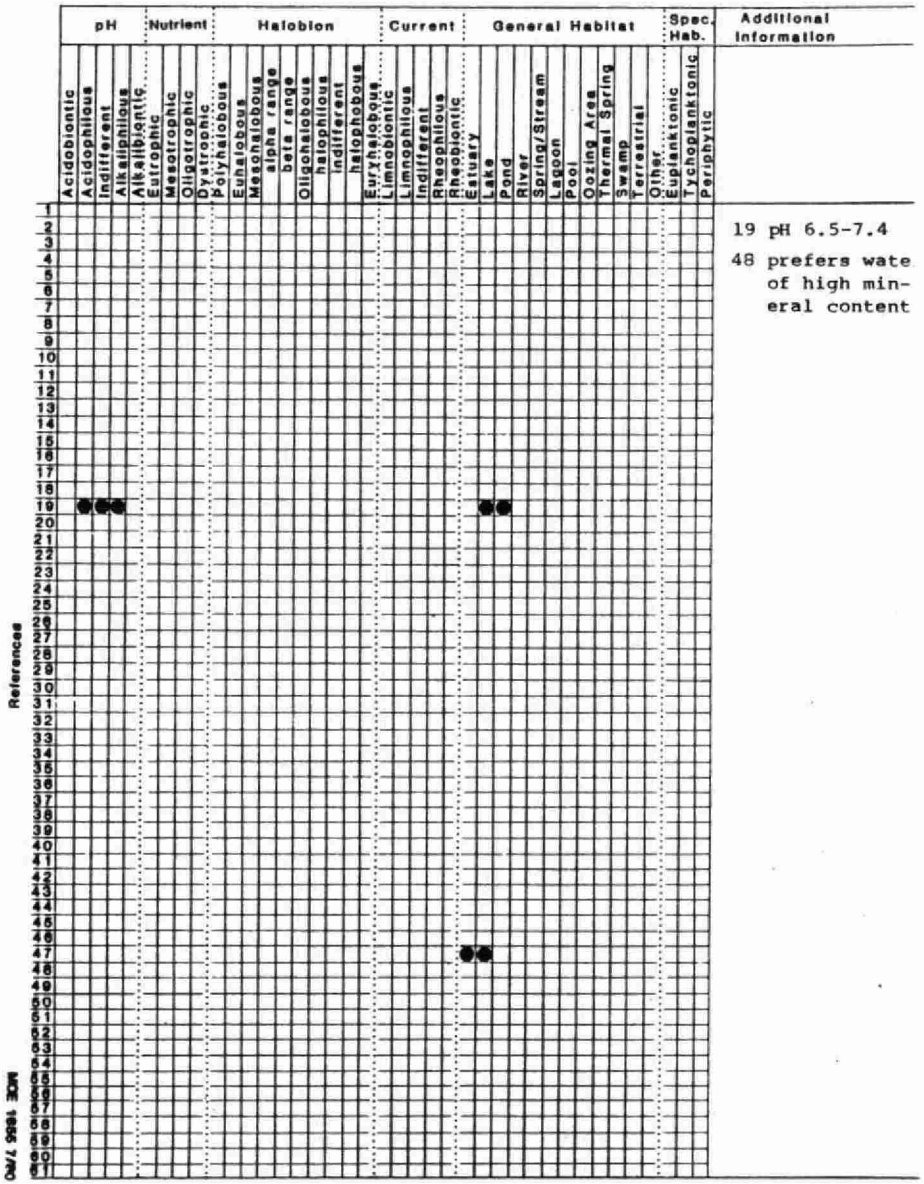
Synonym



Ministry of the Environment
Ontario

Taxon Navicula laterostrata Hust.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula laticeps Hust.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Eurytholobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional information
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XOX 1985 7/80

Ministry of the Environment
Ontario

Taxon Navicula levanderi Hust.

Synonym

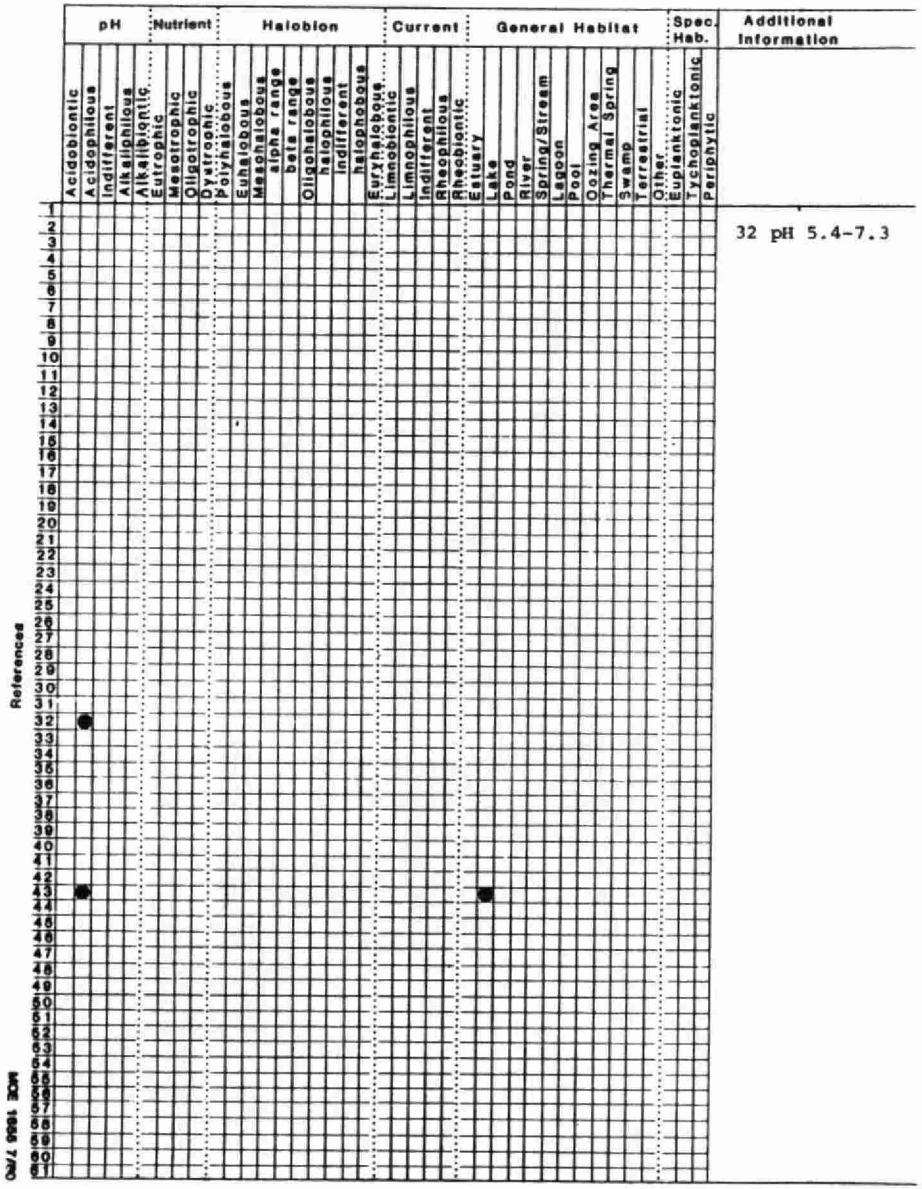
References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Eurytholobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional information
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Ministry of the Environment
Ontario

Taxon Navicula lobeliae Jorg.

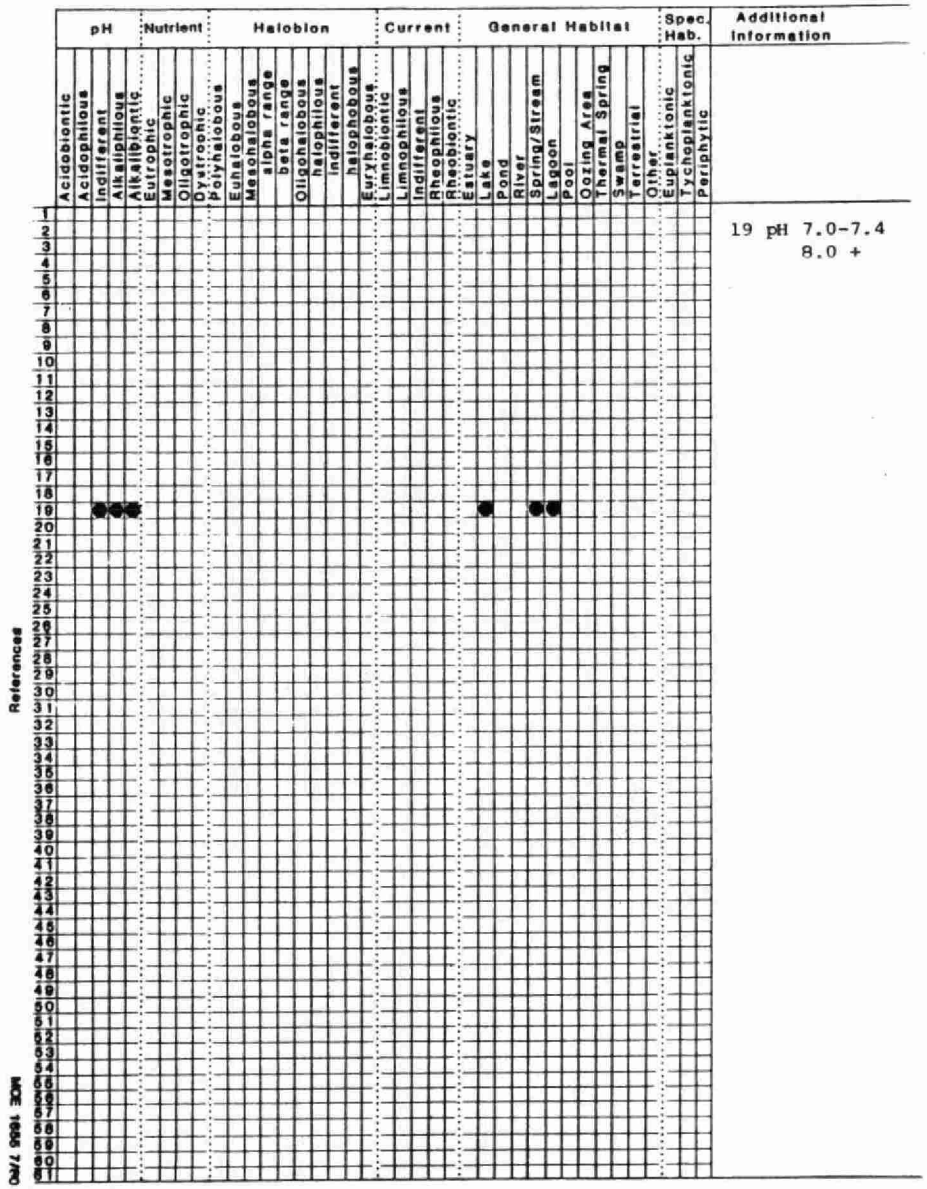
Synonym



Ministry of the Environment
Ontario

Taxon Navicula lundstroemii Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula meadeensis Foged

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Eurythermous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
19			●																									●												19 pH 8.0-8.4

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Ministry of the Environment
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Taxon Navicula mediocris Krasske

Synonym

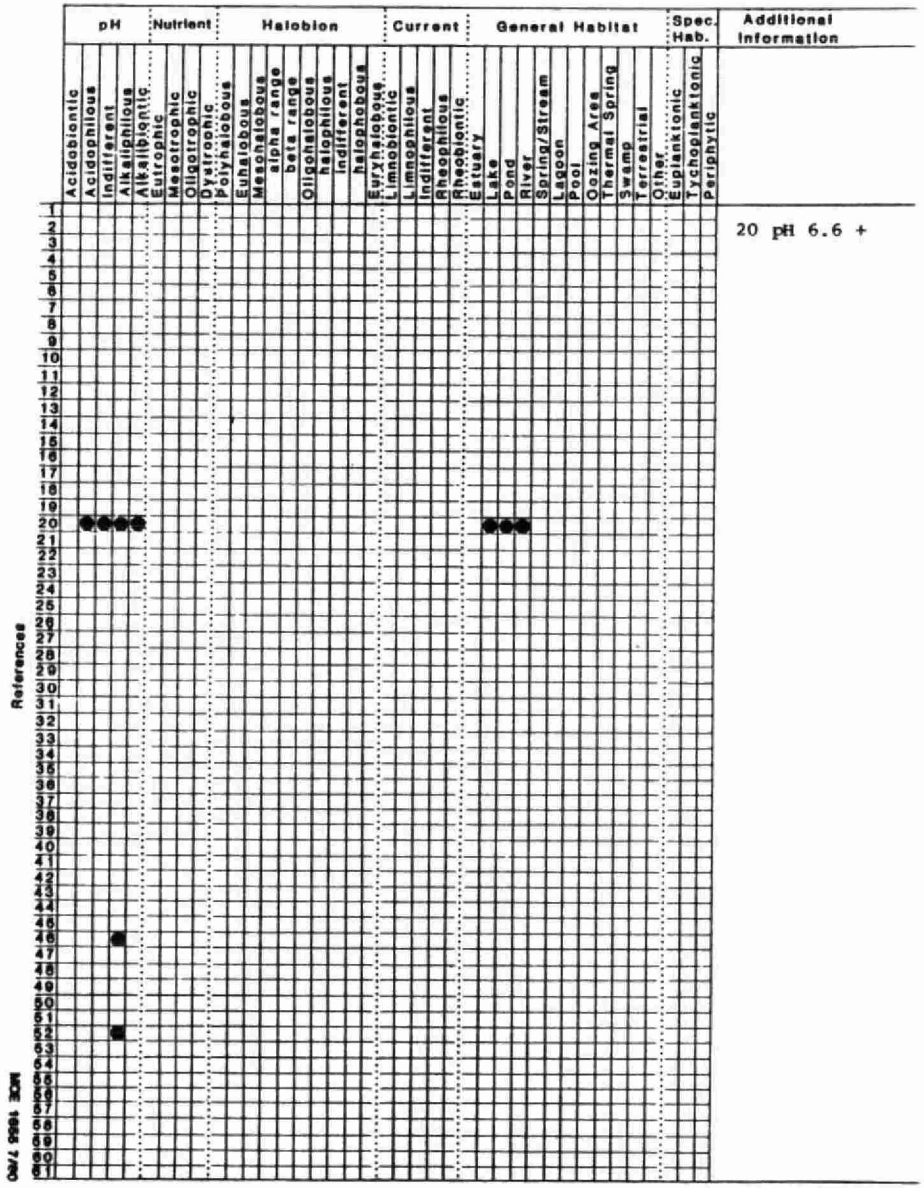
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16			●																																					20 pH 6.6-7.5
20		●	●	●																						●	●					●							32 pH range
32	●																																							4.3-6.8
43			●																							●														

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Ministry of the Environment
Ontario

Taxon Navicula menisculus Schum. var. menisculus

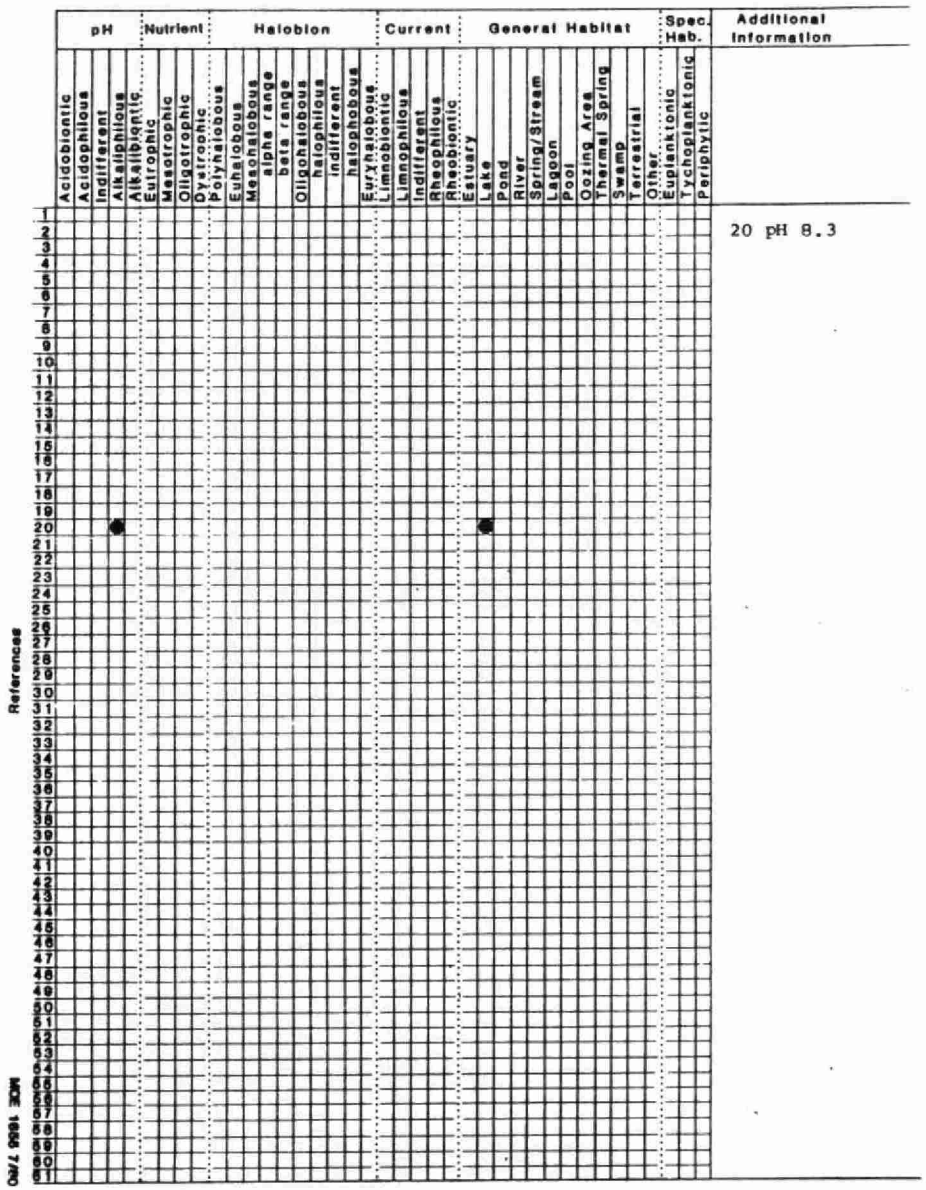
Synonym



Ministry of the Environment
Ontario

Taxon Navicula menisculus var. obtusa Hust.

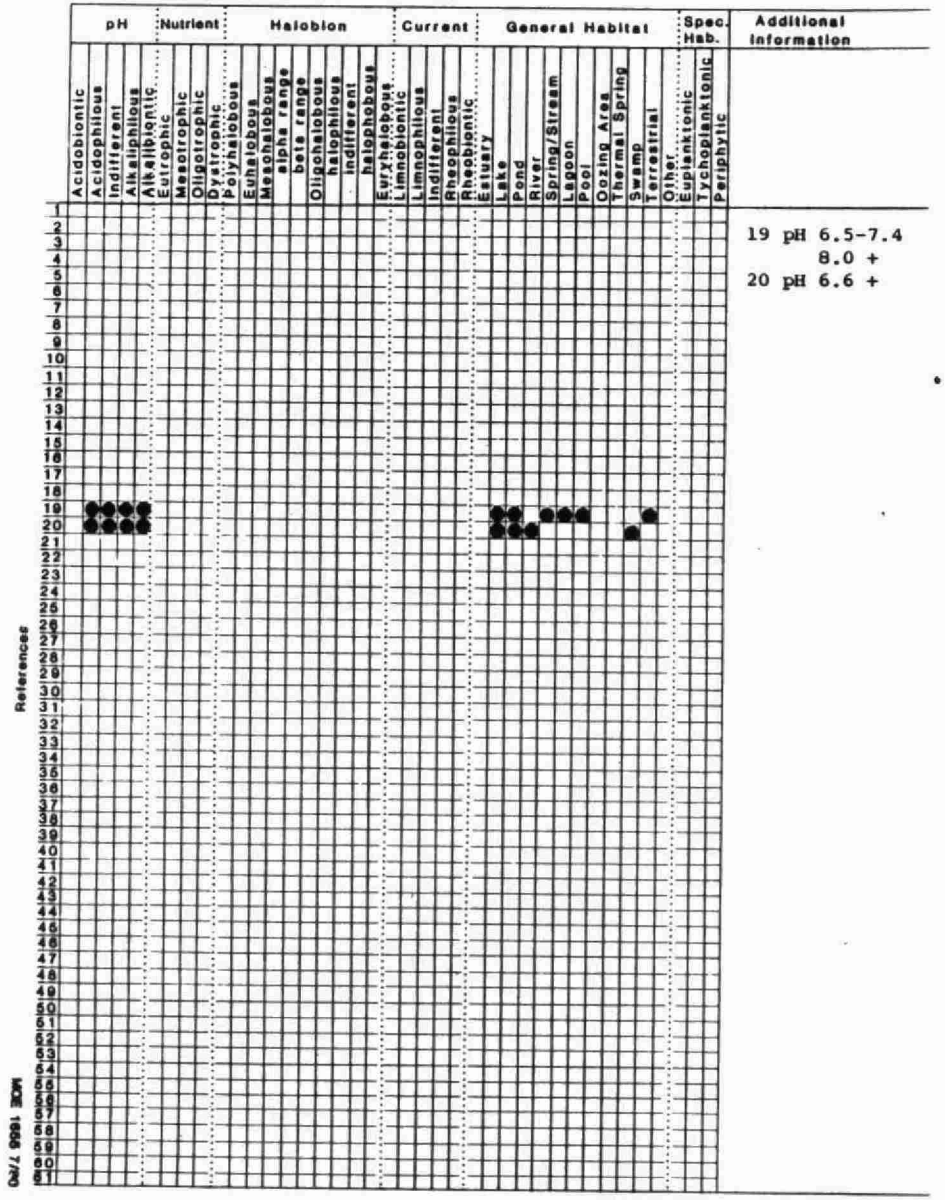
Synonym



Ministry of the Environment
Ontario

Taxon Navicula meniscus Schum.

Synonym



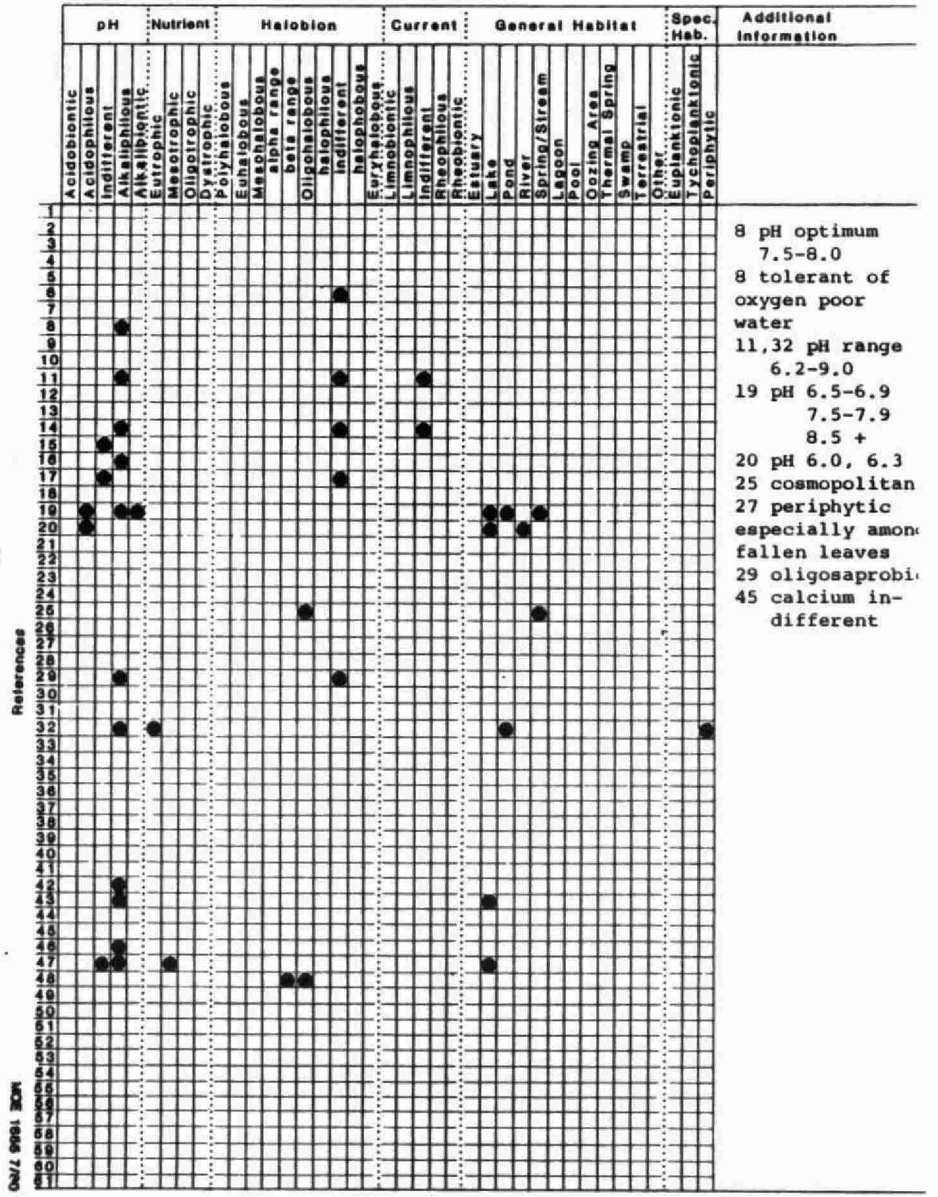
Additional information

19 pH 6.5-7.4
8.0 +
20 pH 6.6 +

Ministry of the Environment
Ontario

Taxon Navicula minima Grun.

Synonym Navicula atomoides Grun.



Additional information

8 pH optimum
7.5-8.0
8 tolerant of oxygen poor water
11,32 pH range
6.2-9.0
19 pH 6.5-6.9
7.5-7.9
8.5 +
20 pH 6.0, 6.3
25 cosmopolitan
27 periphytic especially amon fallen leaves
29 oligosaprobi
45 calcium in-different

Ministry of the Environment
Ontario

Taxon Navicula minusculoides Hust.

Synonym

References	pH					Nutrient					Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula modica Hust.

Synonym

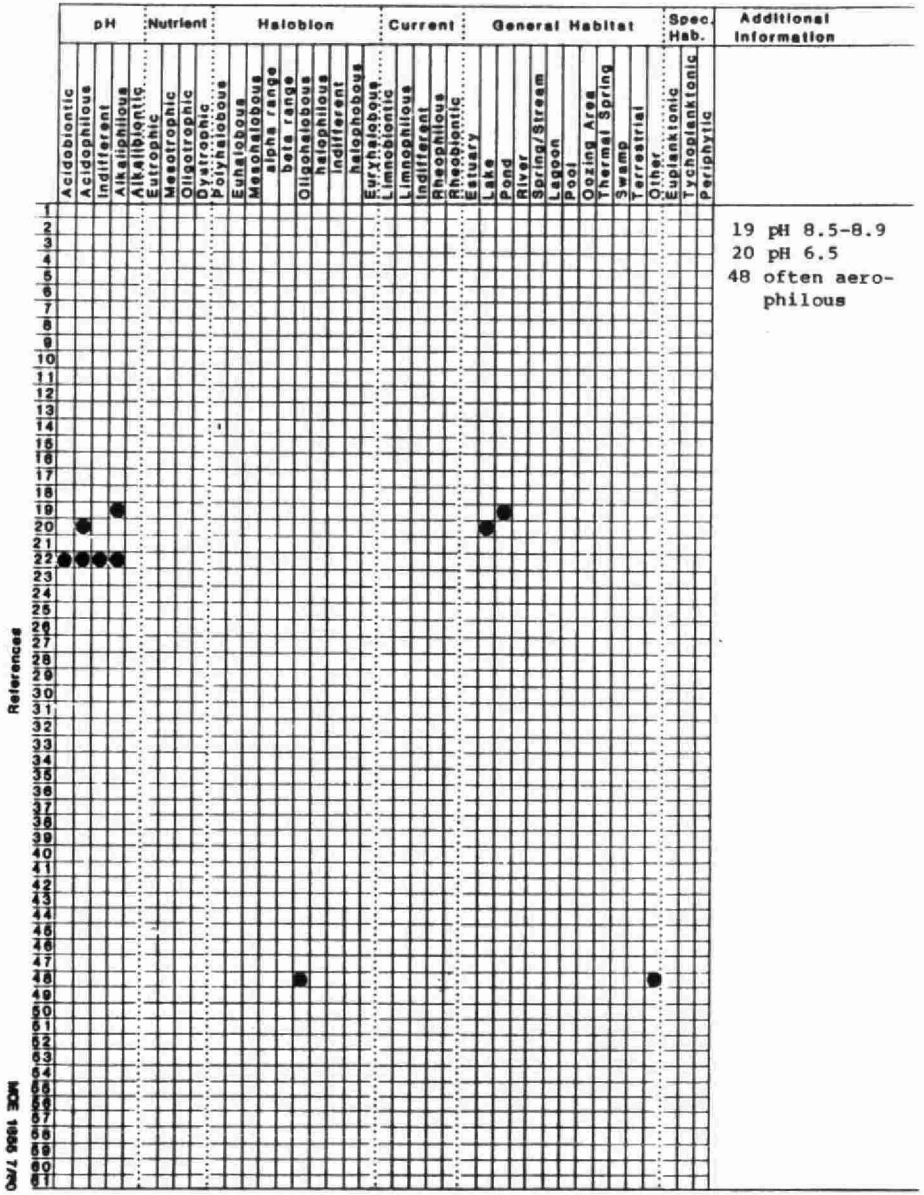
References	pH					Nutrient					Halobion									Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
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Taxon Navicula muralis Grun.

Synonym



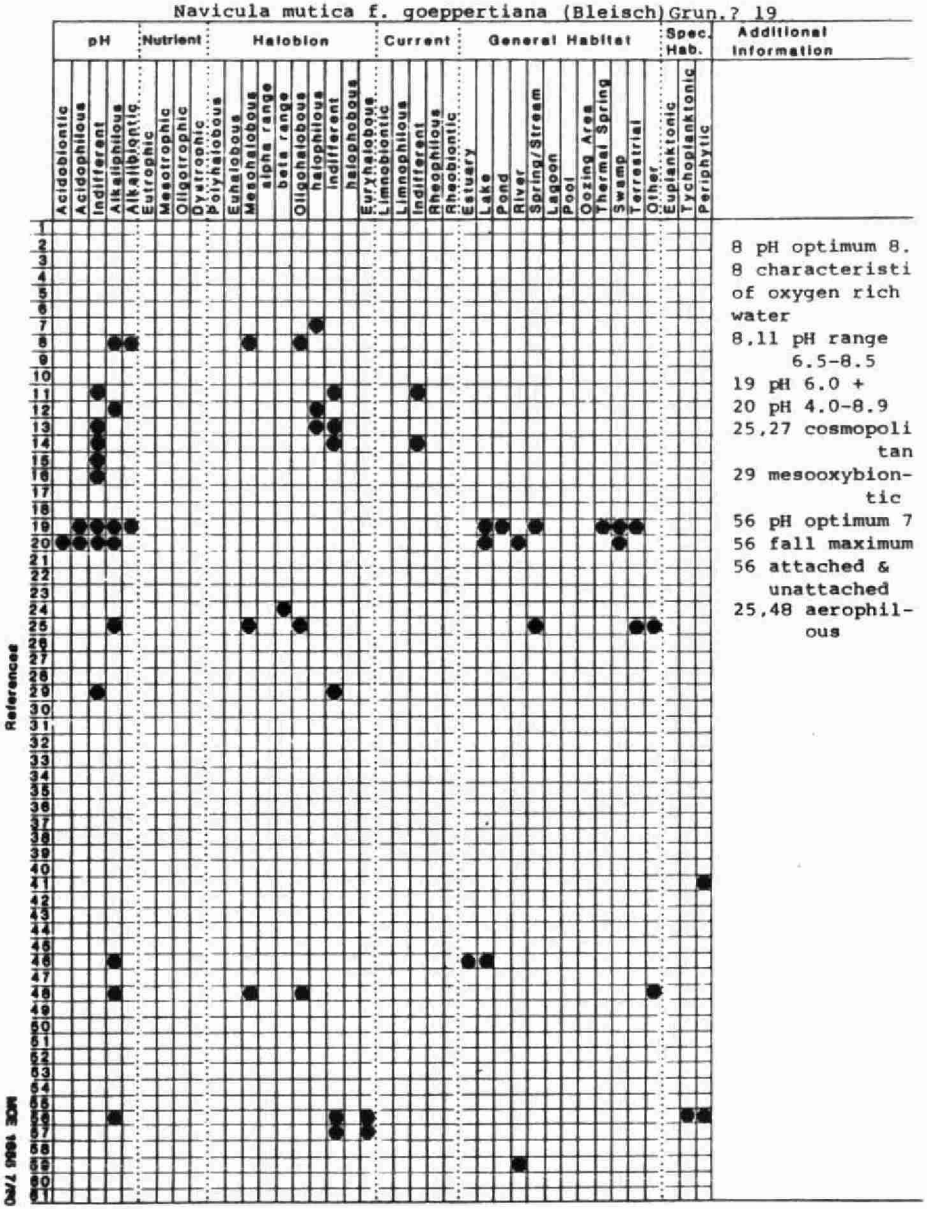
19 pH 8.5-8.9
20 pH 6.5
48 often aerophilous

Ministry of the Environment
Ontario

Taxon Navicula mutica Kutz. var. mutica

Synonym Navicula mutica var. goeppertiana (Bleisch ex Rabh.) Grun.

Navicula mutica f. goeppertiana (Bleisch) Grun.? 19

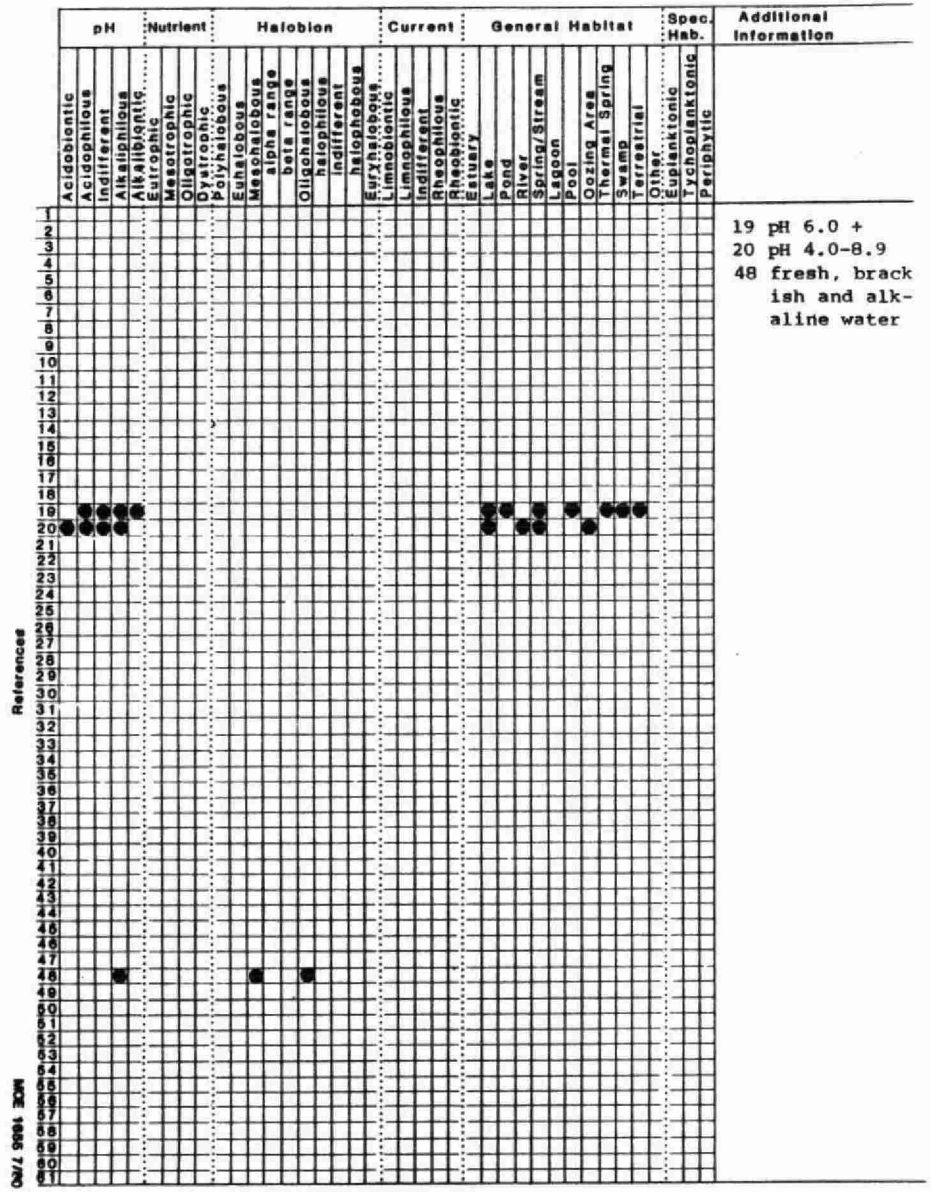


8 pH optimum 8.
8 characteristi of oxygen rich water
8,11 pH range 6.5-8.5
19 pH 6.0 +
20 pH 4.0-8.9
25,27 cosmopolitan
29 mesooxybiontic
56 pH optimum 7
56 fall maximum
56 attached & unattached
25,48 aerophilous

Ministry of the Environment
Ontario

Taxon Navicula mutica f. cohnii (Hilse) Grun.

Synonym Navicula mutica var. cohnii (Hilse)Grun.7 48



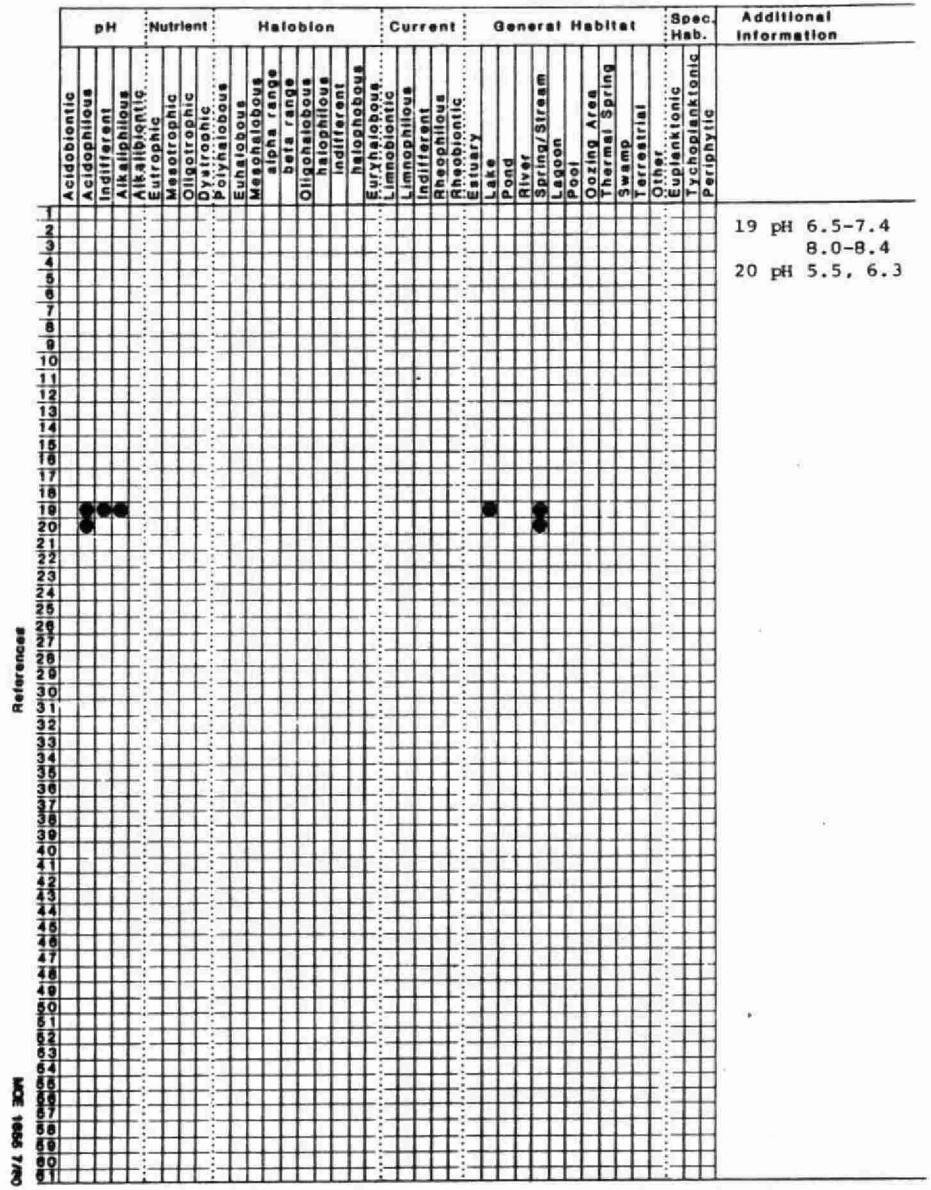
Additional Information

19 pH 6.0 +
20 pH 4.0-8.9
48 fresh, brackish and alkaline water

Ministry of the Environment
Ontario

Taxon Navicula mutica f. lanceolata (Freng.) Hust.

Synonym



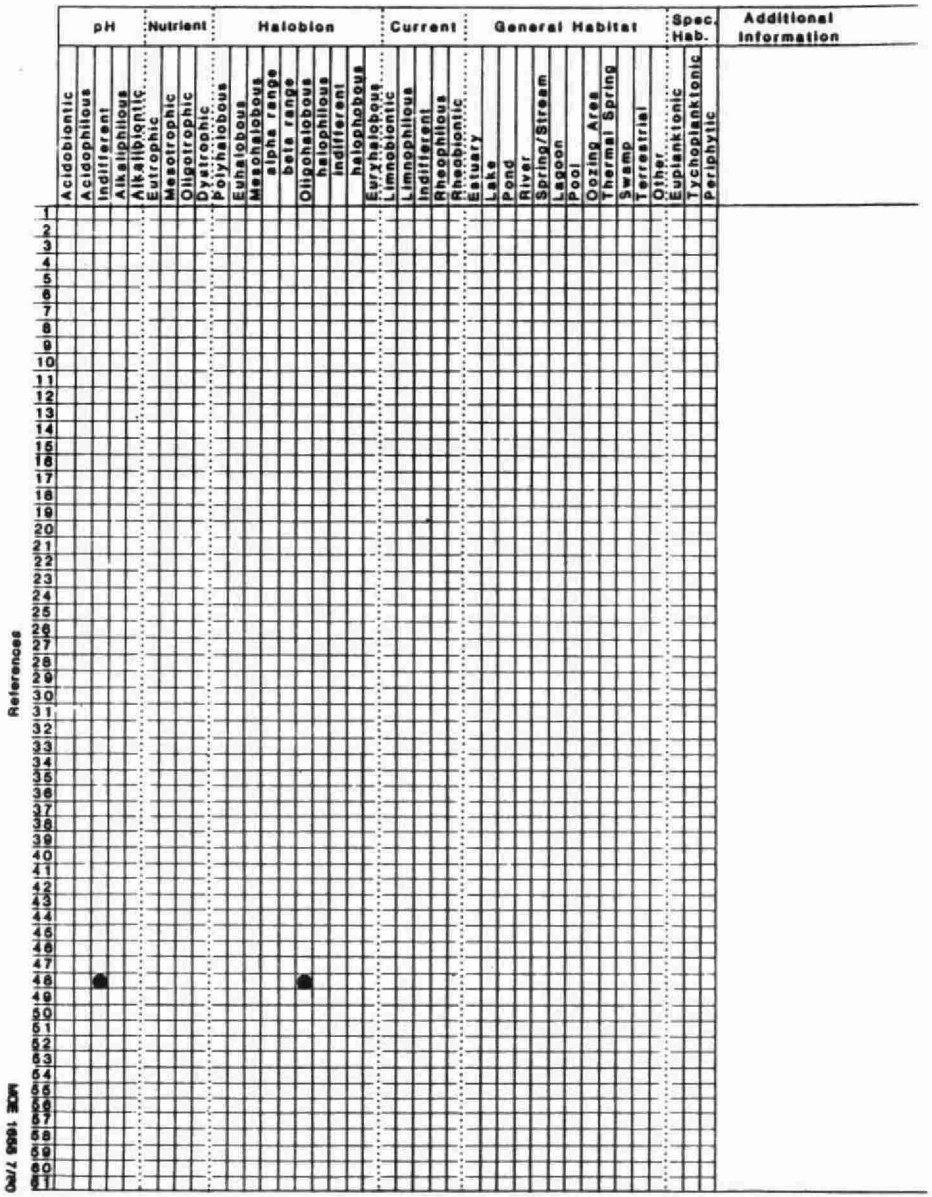
Additional Information

19 pH 6.5-7.4
8.0-8.4
20 pH 5.5, 6.3

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Ontario

Taxon Navicula mutica var. tropica Hust.

Synonym

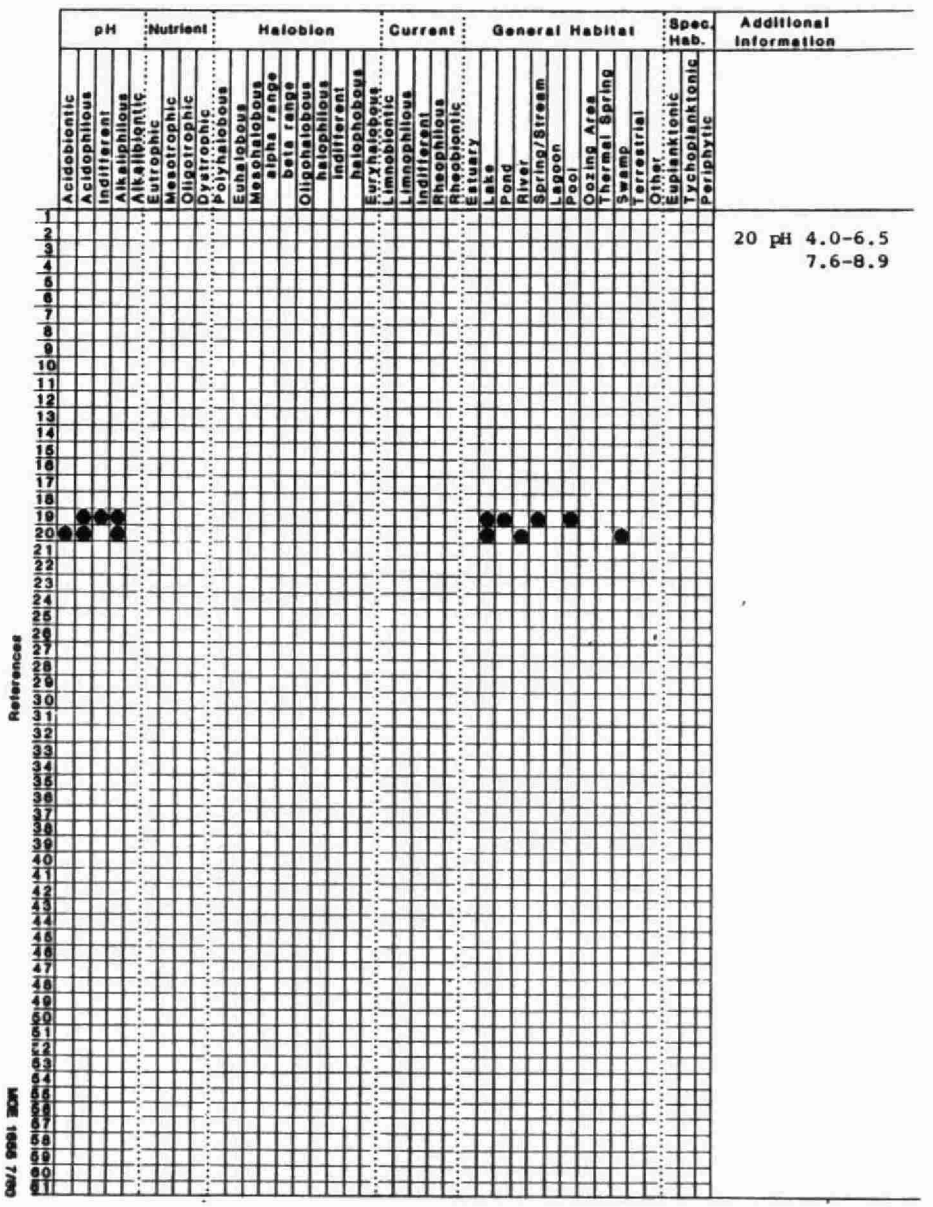


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Ministry of the Environment
Ontario

Taxon Navicula neoventricosa Hust.

Synonym

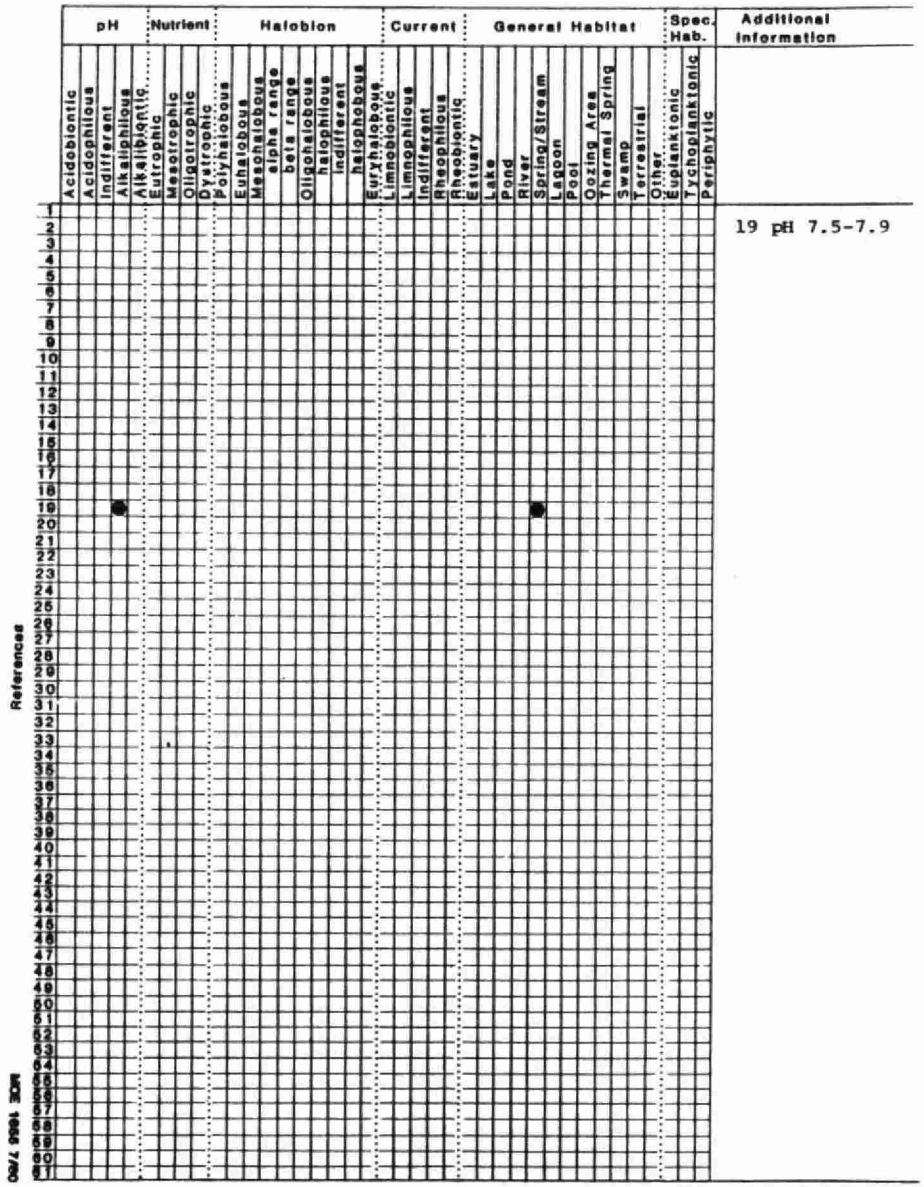


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Ministry of the Environment
Ontario

Taxon Navicula obligata Hust.

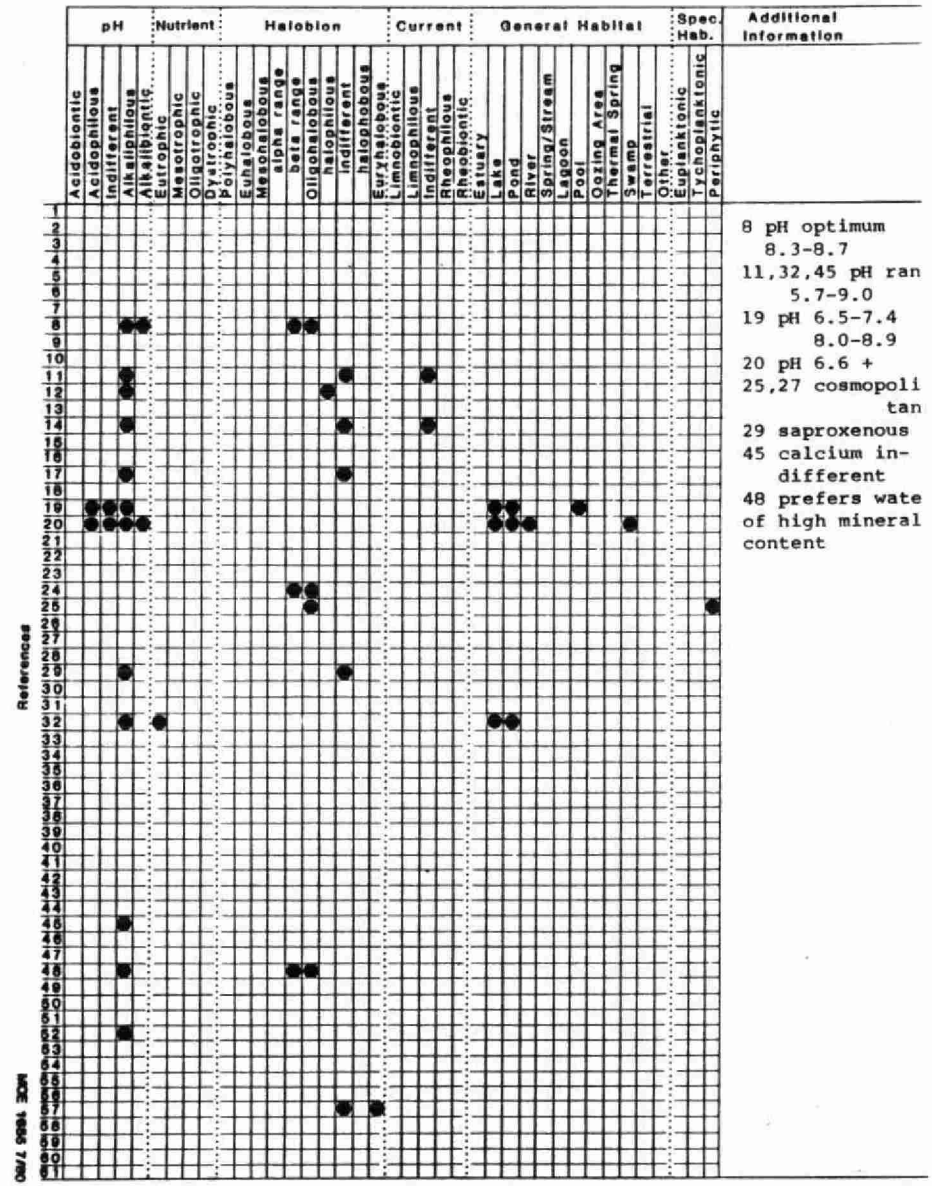
Synonym



Ministry of the Environment
Ontario

Taxon Navicula oblonga (Kutz.) Kutz.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula oculata Krasske

Synonym Navicula occulta Krasske

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula omissa Hust.

Synonym

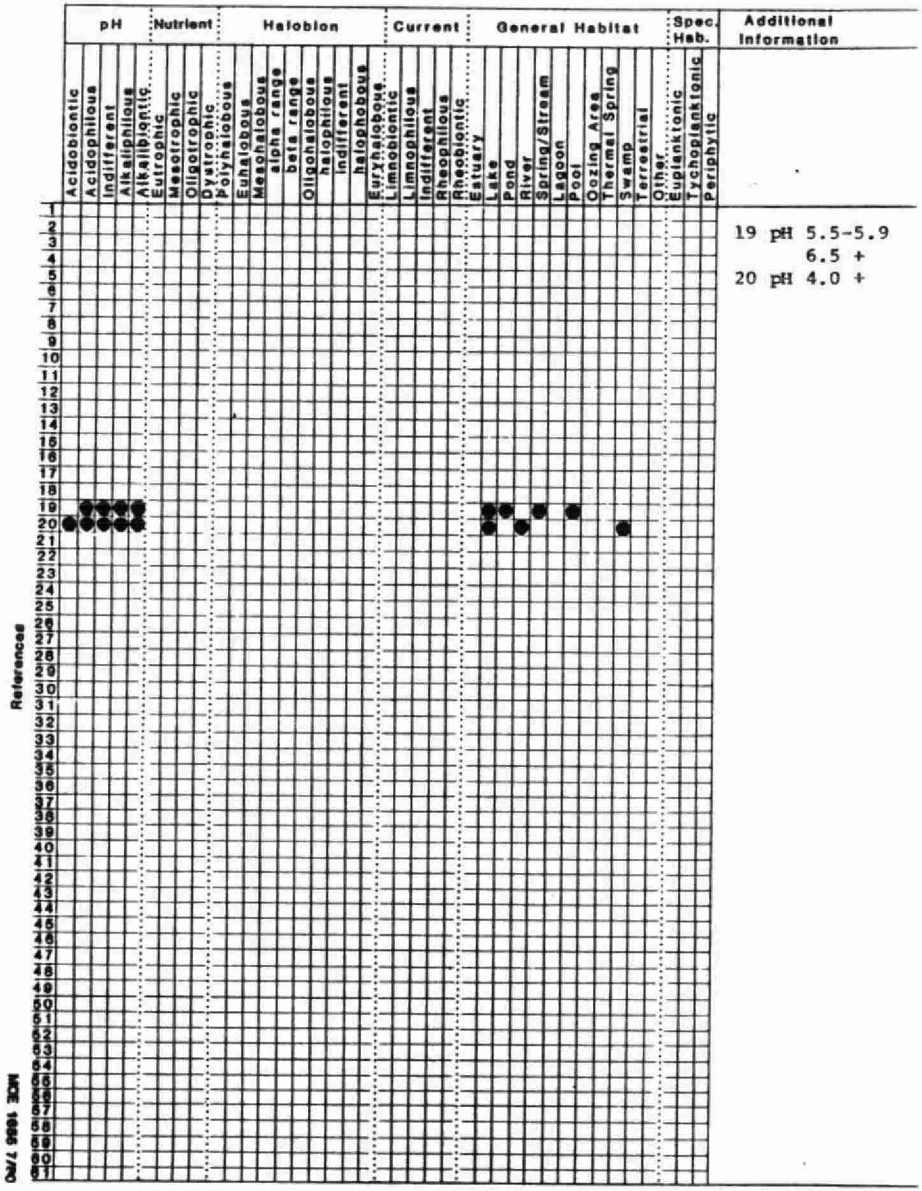
References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1988 7/NO

Ministry of the Environment
Ontario

Taxon Navicula opportuna Hust.

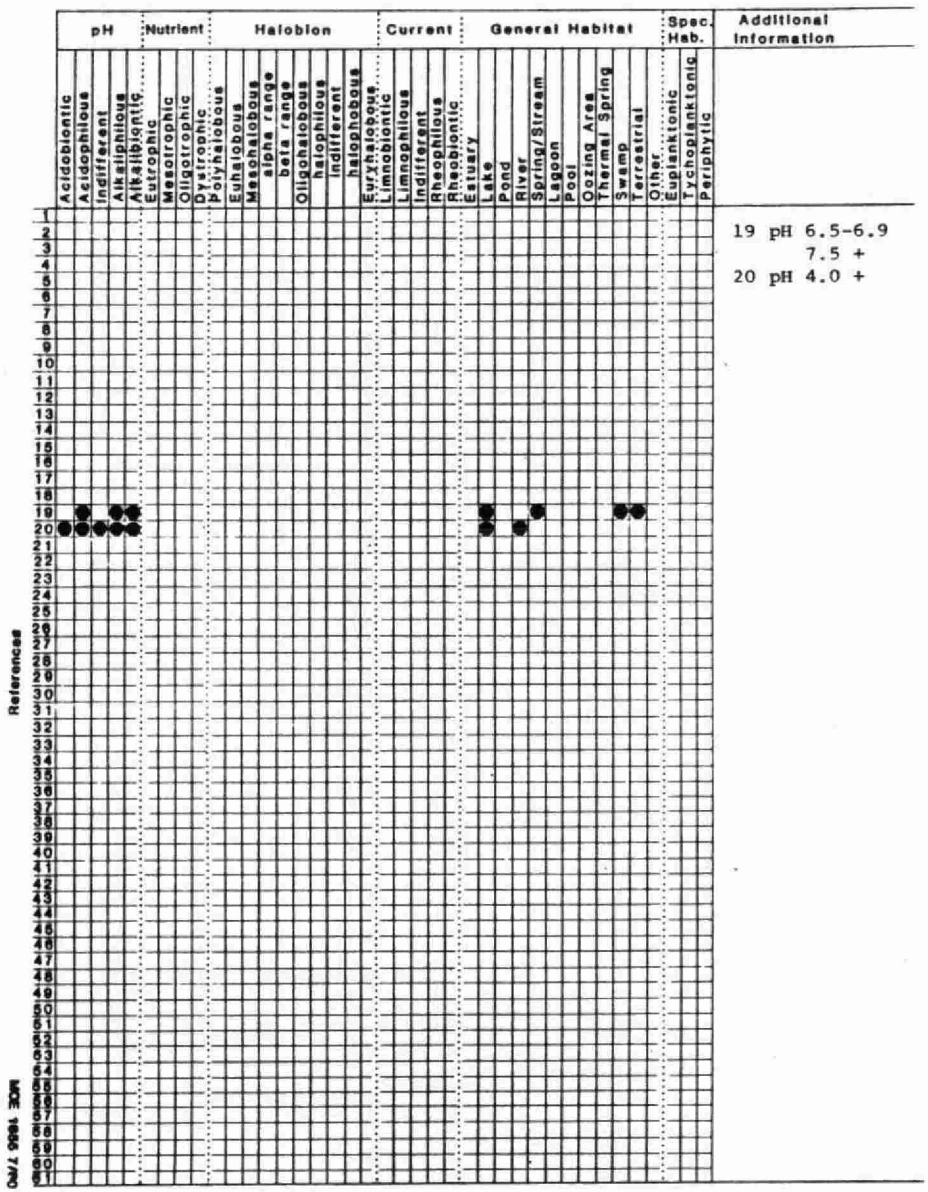
Synonym



Ministry of the Environment
Ontario

Taxon Navicula oppugnata Hust.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula paanaensis Cl.-Eul.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19				●																																				19 pH 7.5-7.9
20	●																								●				●											20 pH 6.5

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Ministry of the Environment
Ontario

Taxon Navicula palaearctica Hust.

Synonym

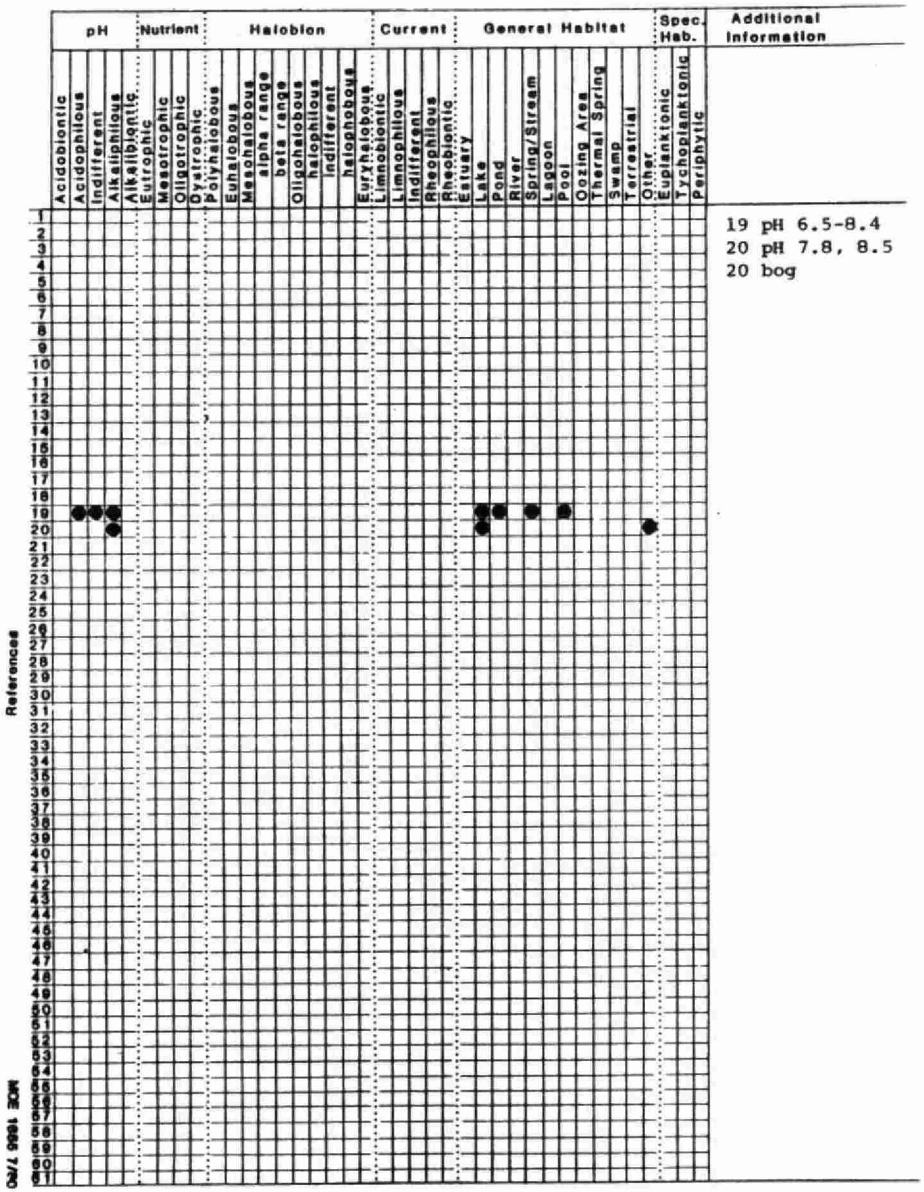
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19			●																										●											19 pH 7.0-7.4

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Ministry of the Environment
Ontario

Taxon Navicula paludosa Hust.

Synonym



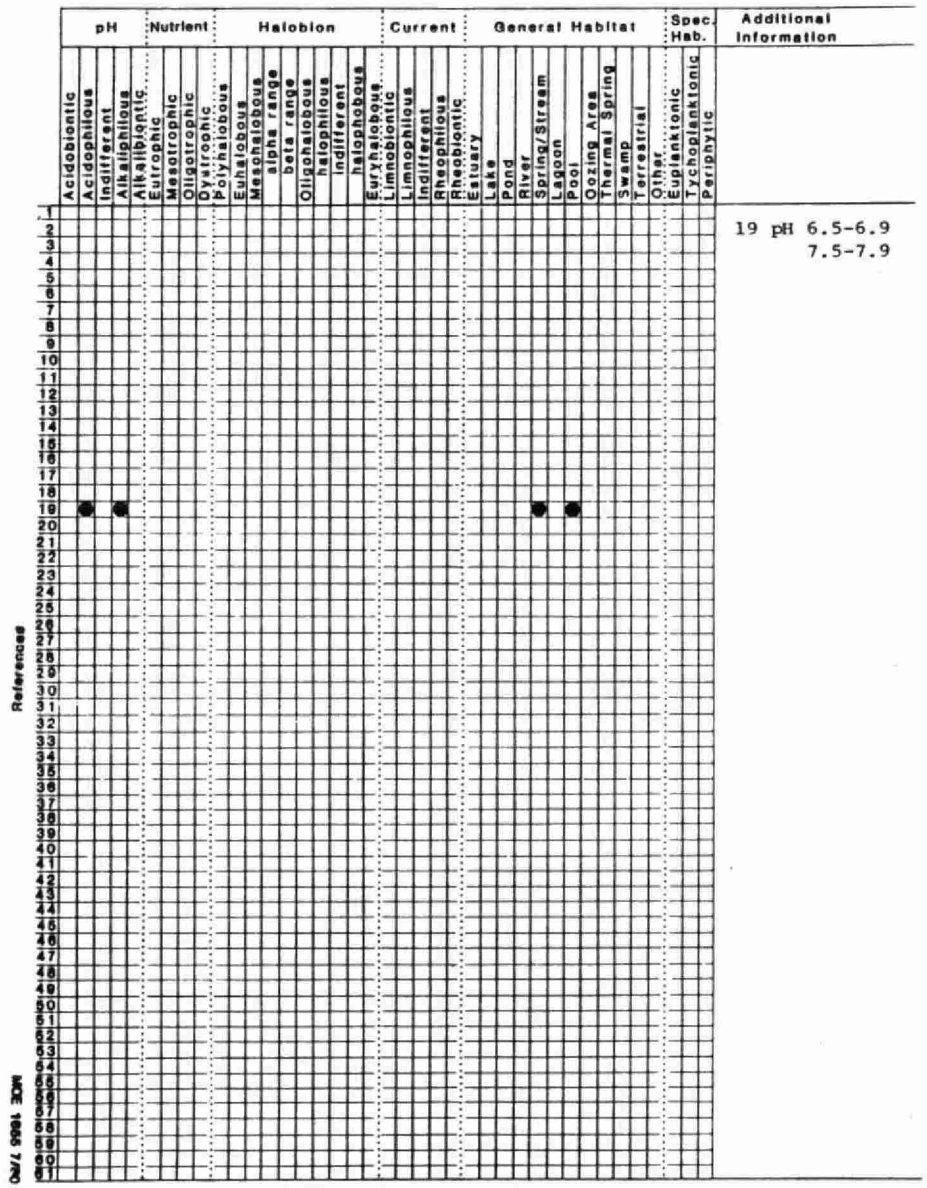
Additional Information

19 pH 6.5-8.4
20 pH 7.8, 8.5
20 bog

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Taxon Navicula paludosa f. minores Hust.

Synonym



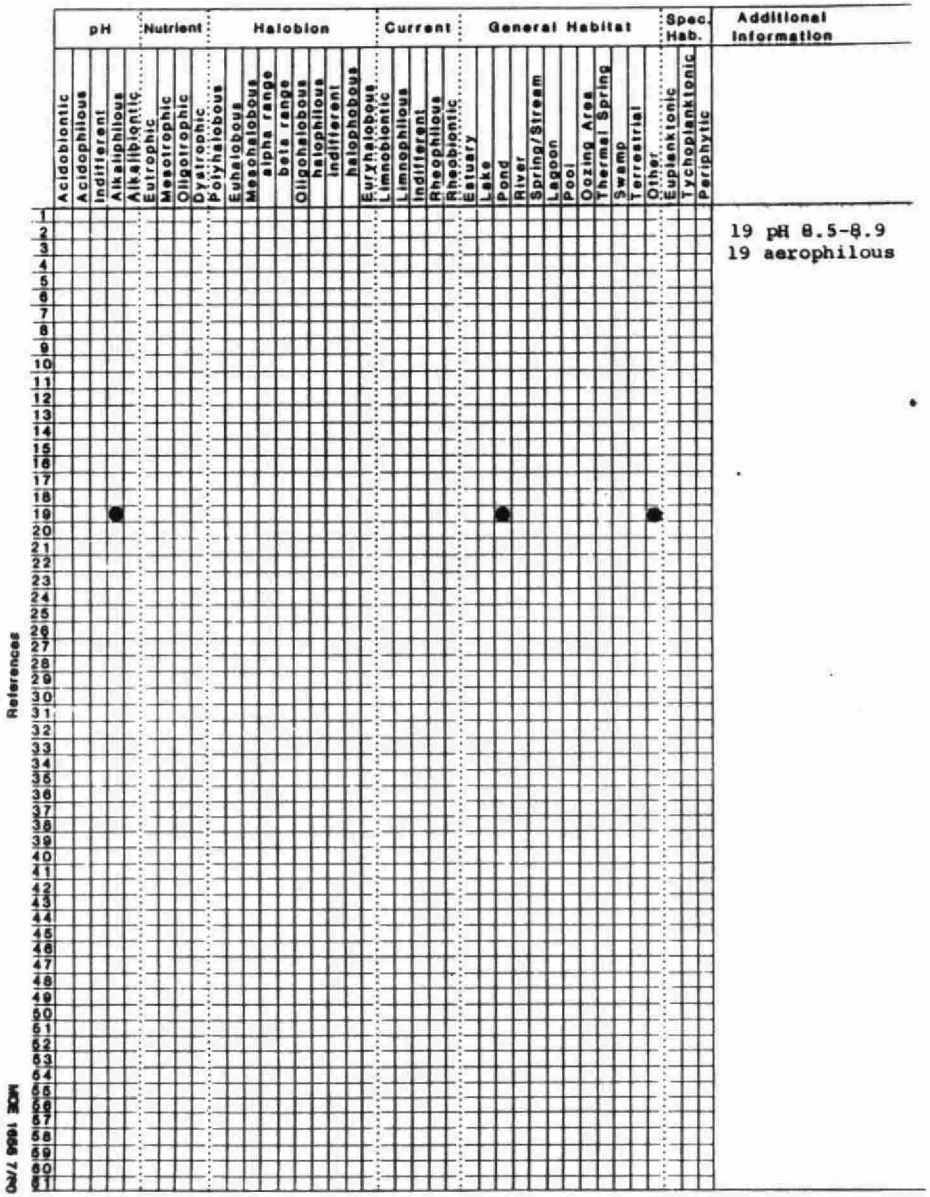
Additional Information

19 pH 6.5-6.9
7.5-7.9

Ministry of the Environment
Ontario

Taxon Navicula paramutica Bock

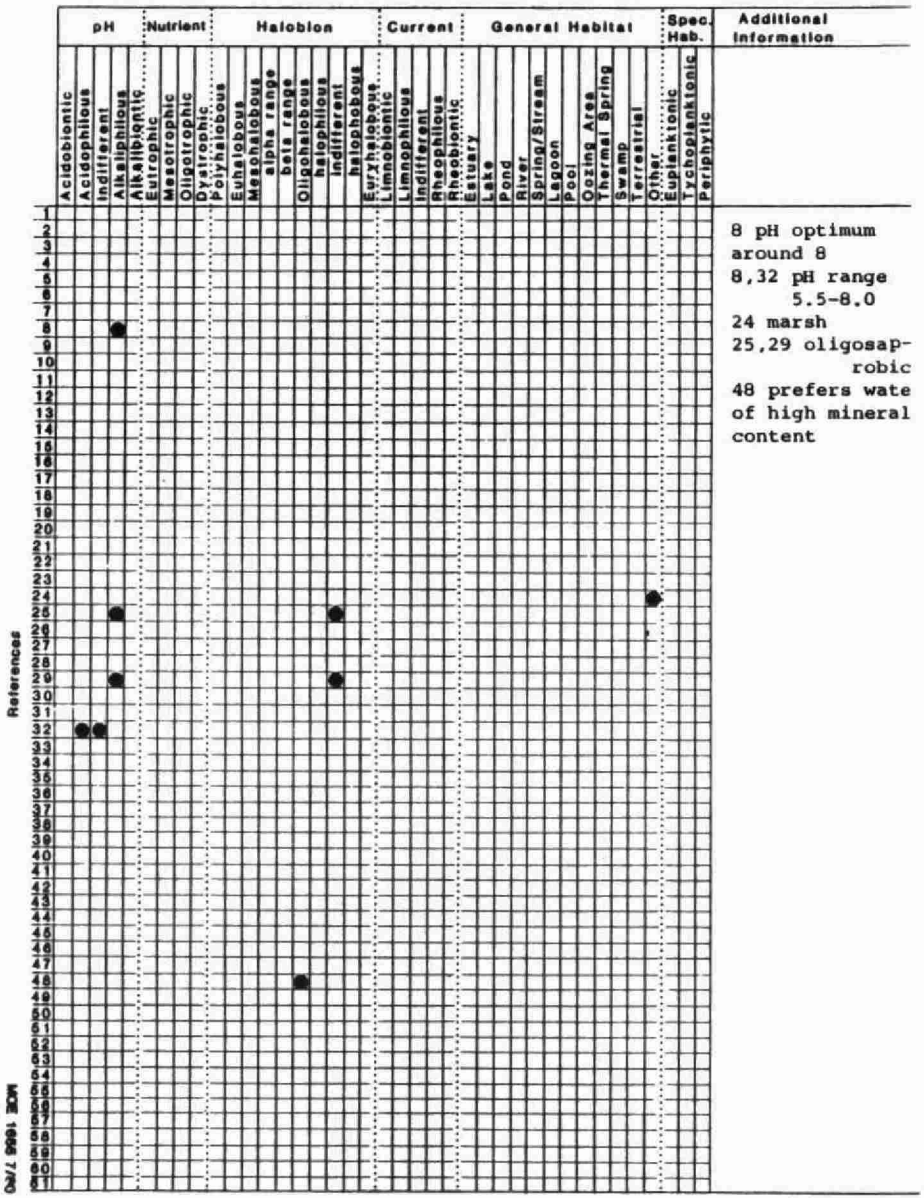
Synonym



Ministry of the Environment
Ontario

Taxon Navicula pelliculosa (Breb. ex Kutz.) Hilse

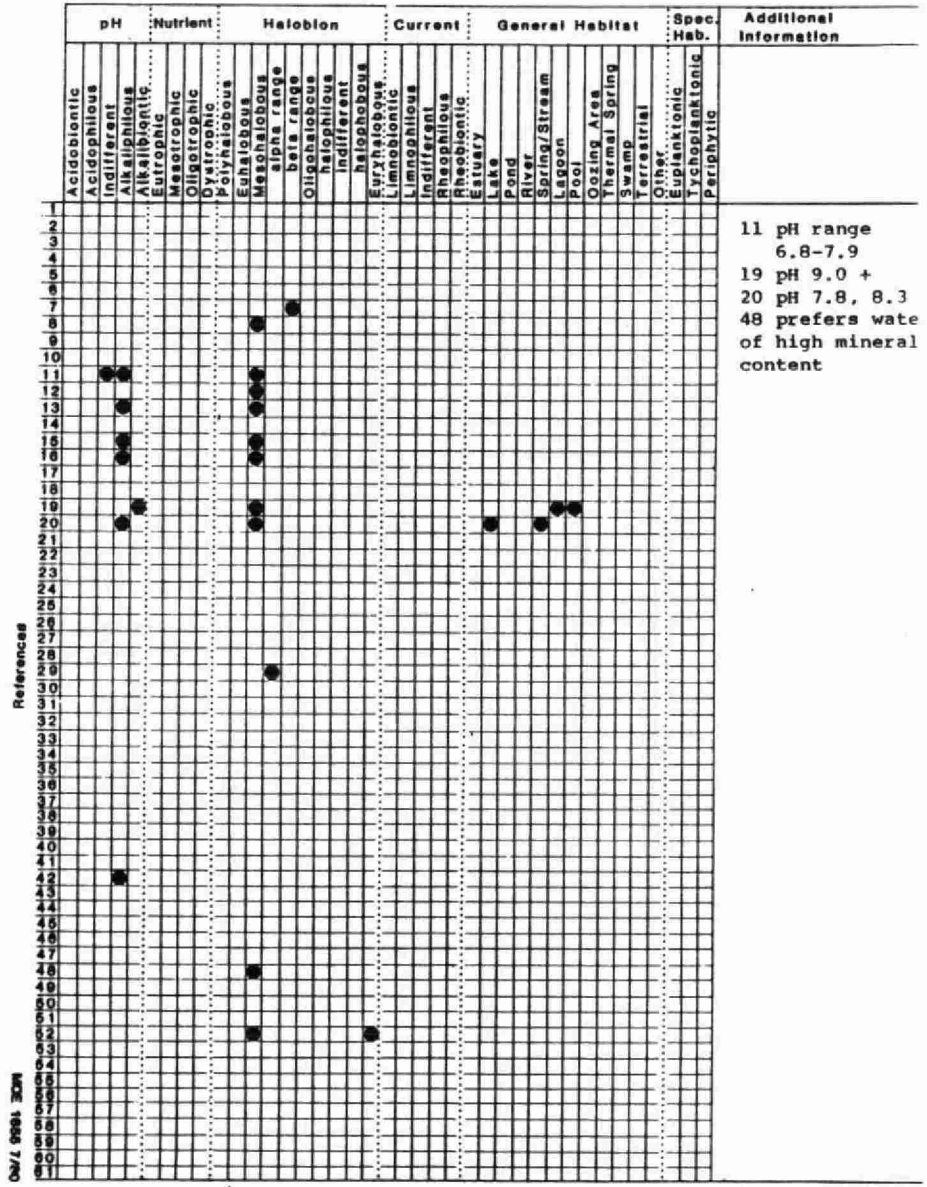
Synonym



Ministry of the Environment
Ontario

Taxon Navicula peregrina (Ehr.) Kutz.

Synonym



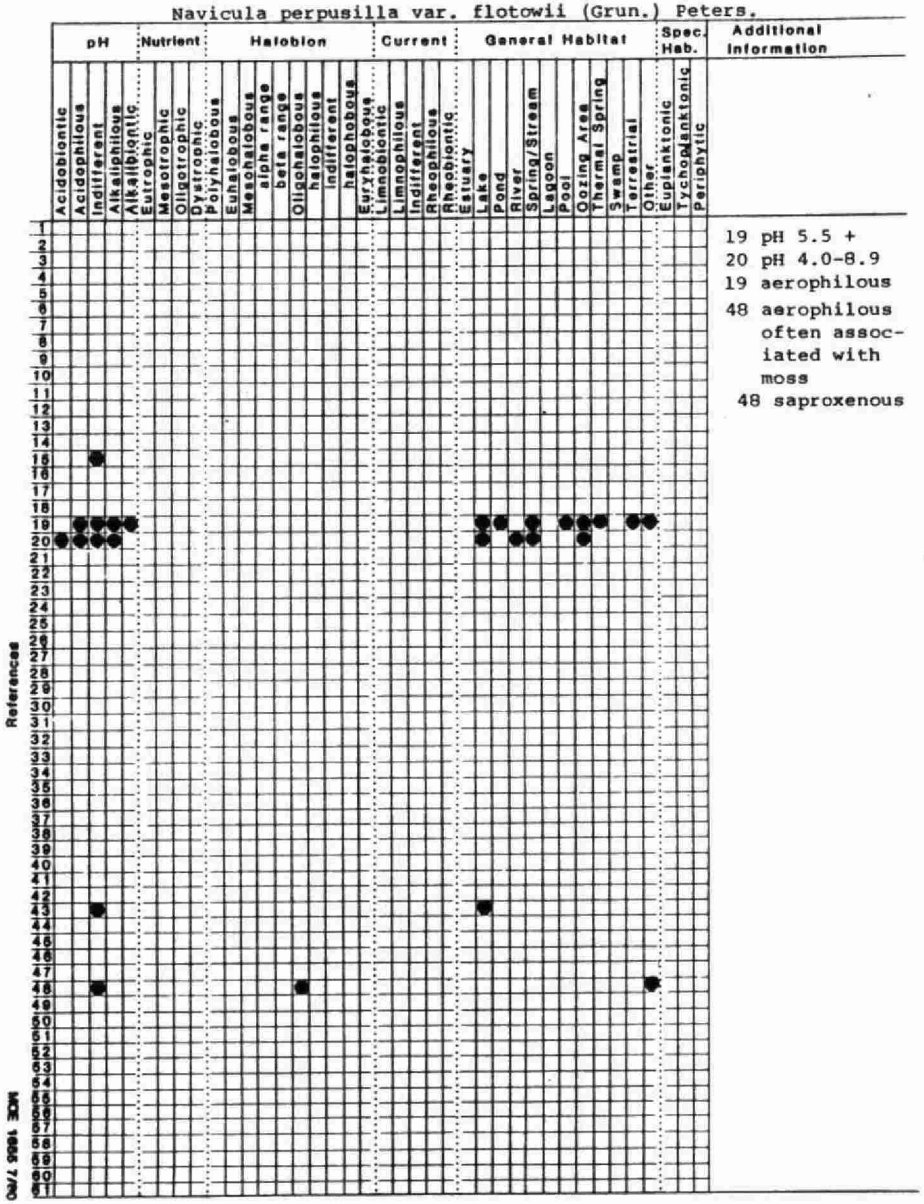
11 pH range 6.8-7.9
19 pH 9.0 +
20 pH 7.8, 8.3
48 prefers wate of high mineral content

Ministry of the Environment
Ontario

Taxon Navicula perpusilla (Kutz.) Grun.

Synonym Navicula flotowii Grun.

Navicula perpusilla var. flotowii (Grun.) Peters.

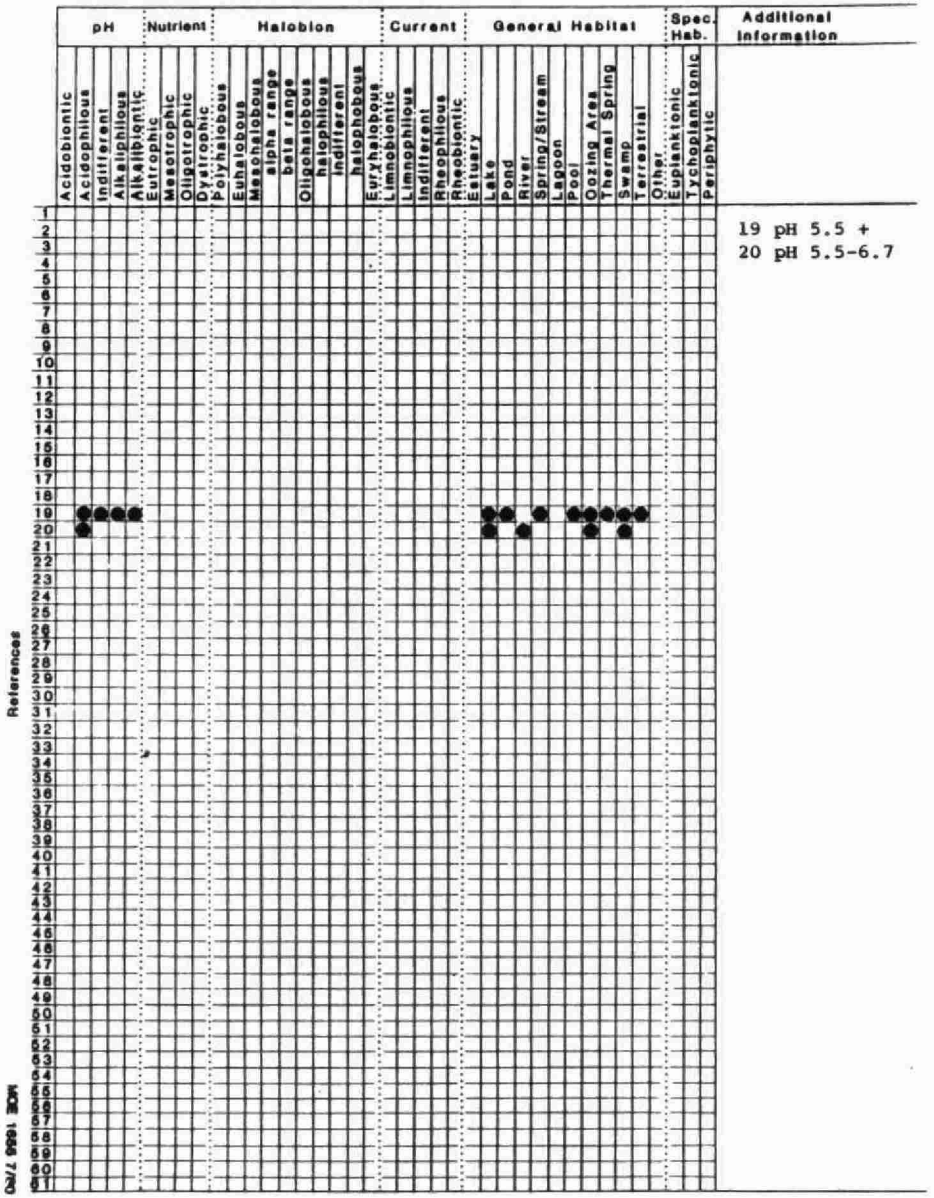


19 pH 5.5 +
20 pH 4.0-8.9
19 aerophilous
48 aerophilous often associated with moss
48 saproxenous

Ministry of the Environment
Ontario

Taxon Navicula petersenii Hust.

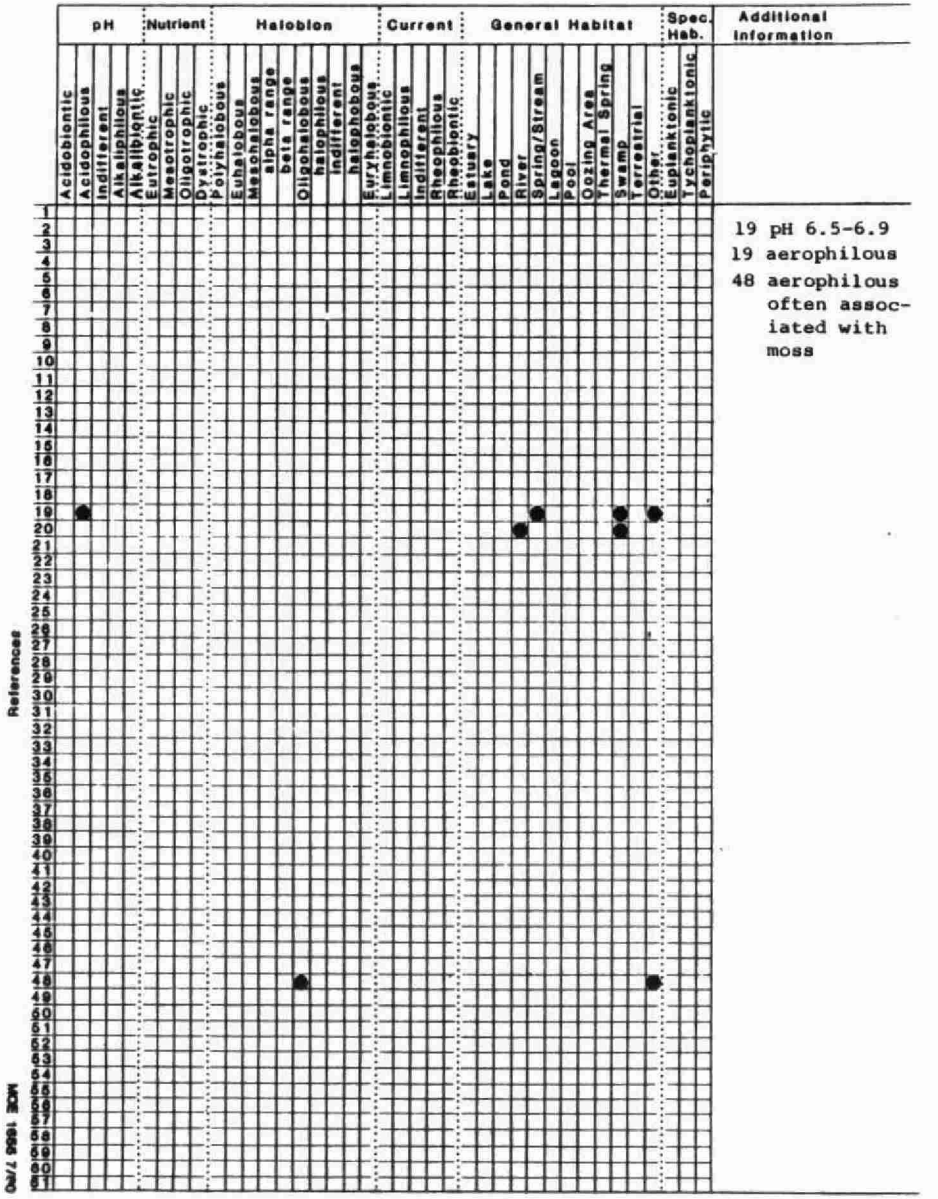
Synonym



Ministry of the Environment
Ontario

Taxon Navicula placenta Ehr.

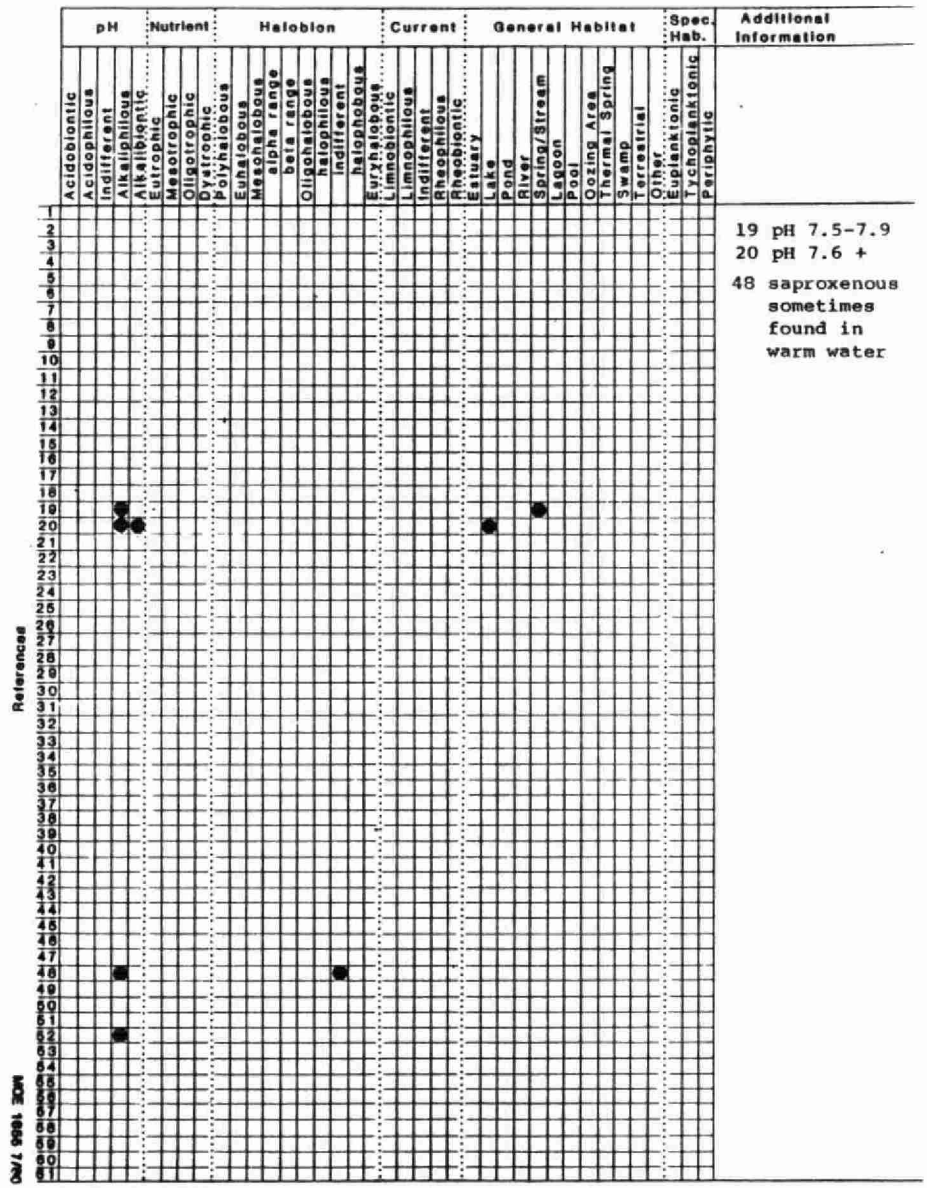
Synonym Navicula elegantissima M. Perag.



Ministry of the Environment
Ontario

Taxon Navicula placentula (Ehr.) Kutz. var. placentula

Synonym



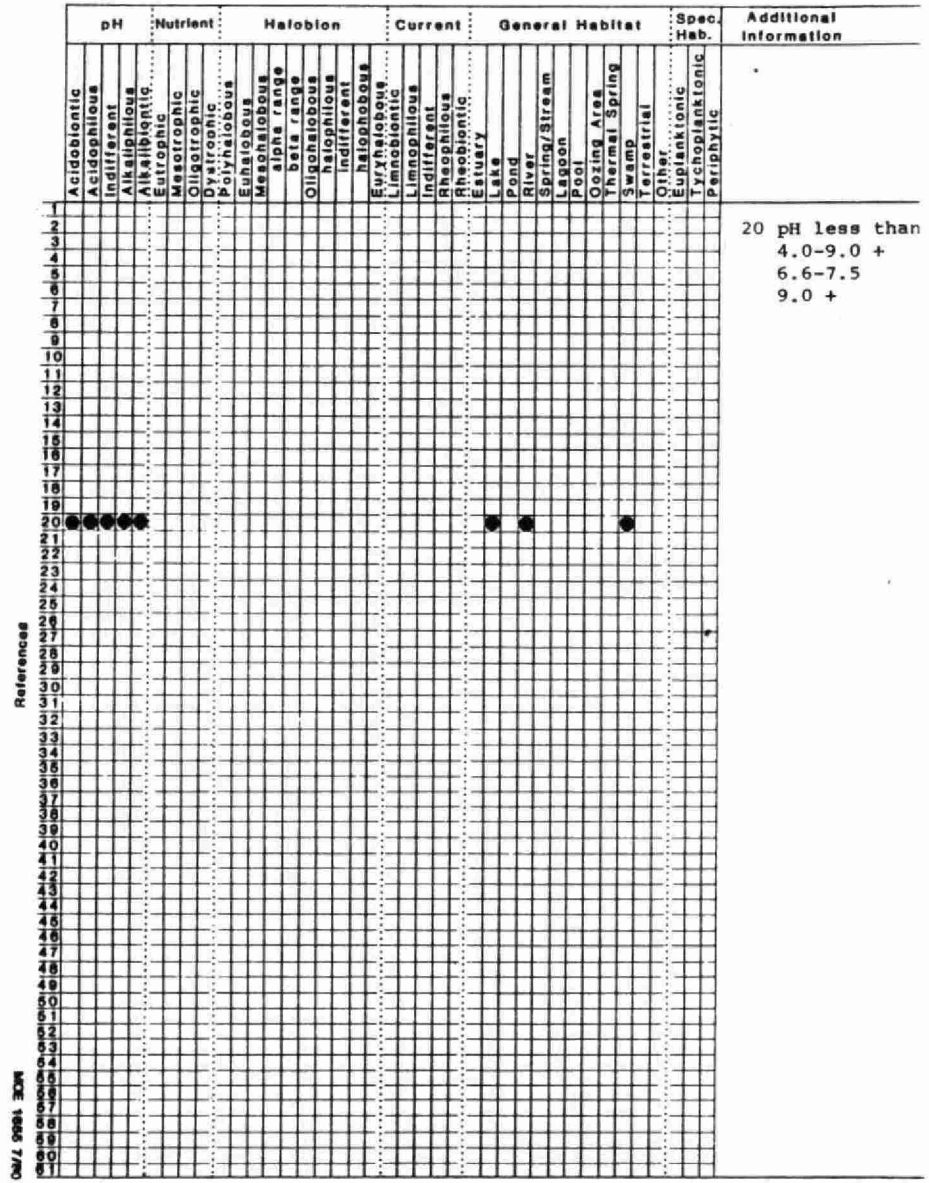
19 pH 7.5-7.9
20 pH 7.6 +

48 saproxenous sometimes found in warm water

Ministry of the Environment
Ontario

Taxon Navicula placentula f. jenisseyensis (Grun.) Meist.

Synonym

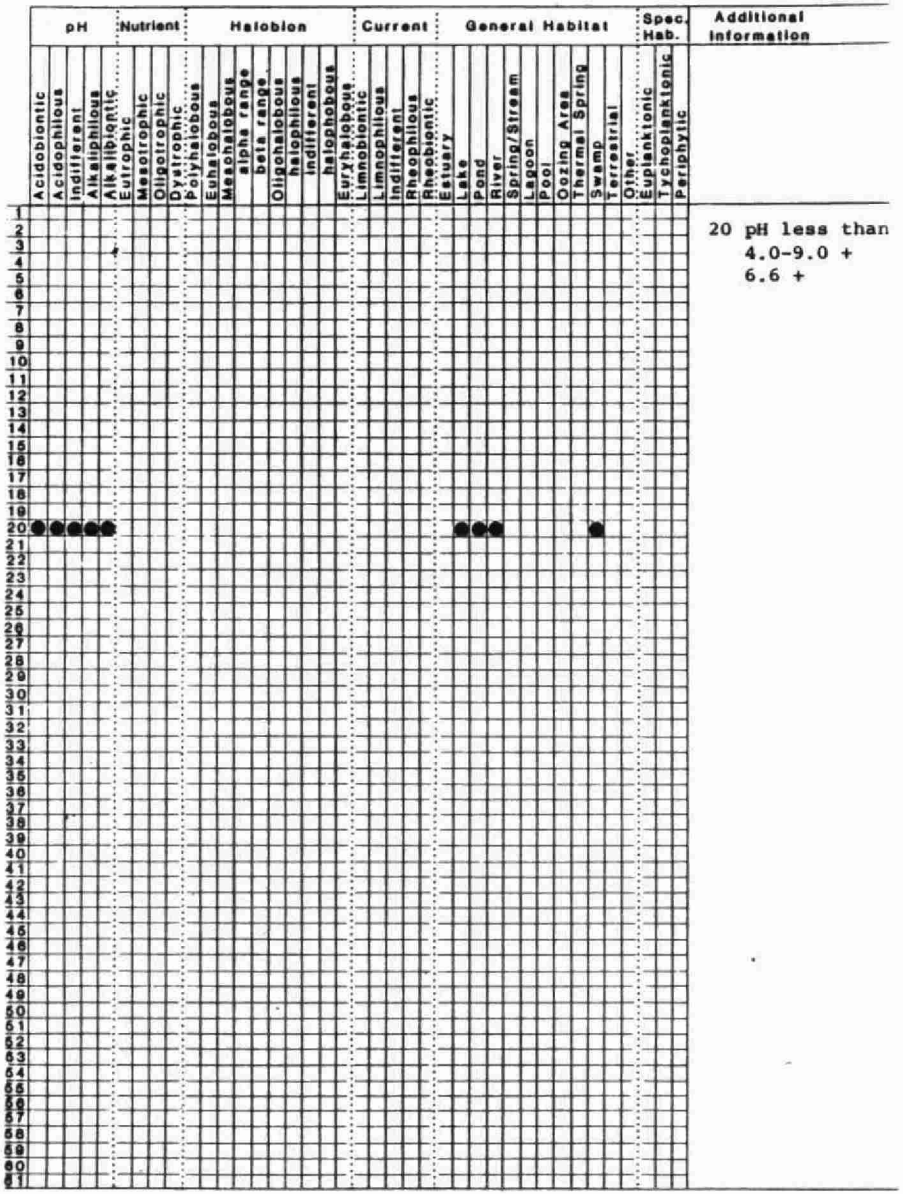


20 pH less than 4.0-9.0 +
6.6-7.5
9.0 +

Ministry of the Environment
Ontario

Taxon Navicula placentula f. rostrata A. Mayer

Synonym Navicula placentula var. rostrata A Mayer ? 20

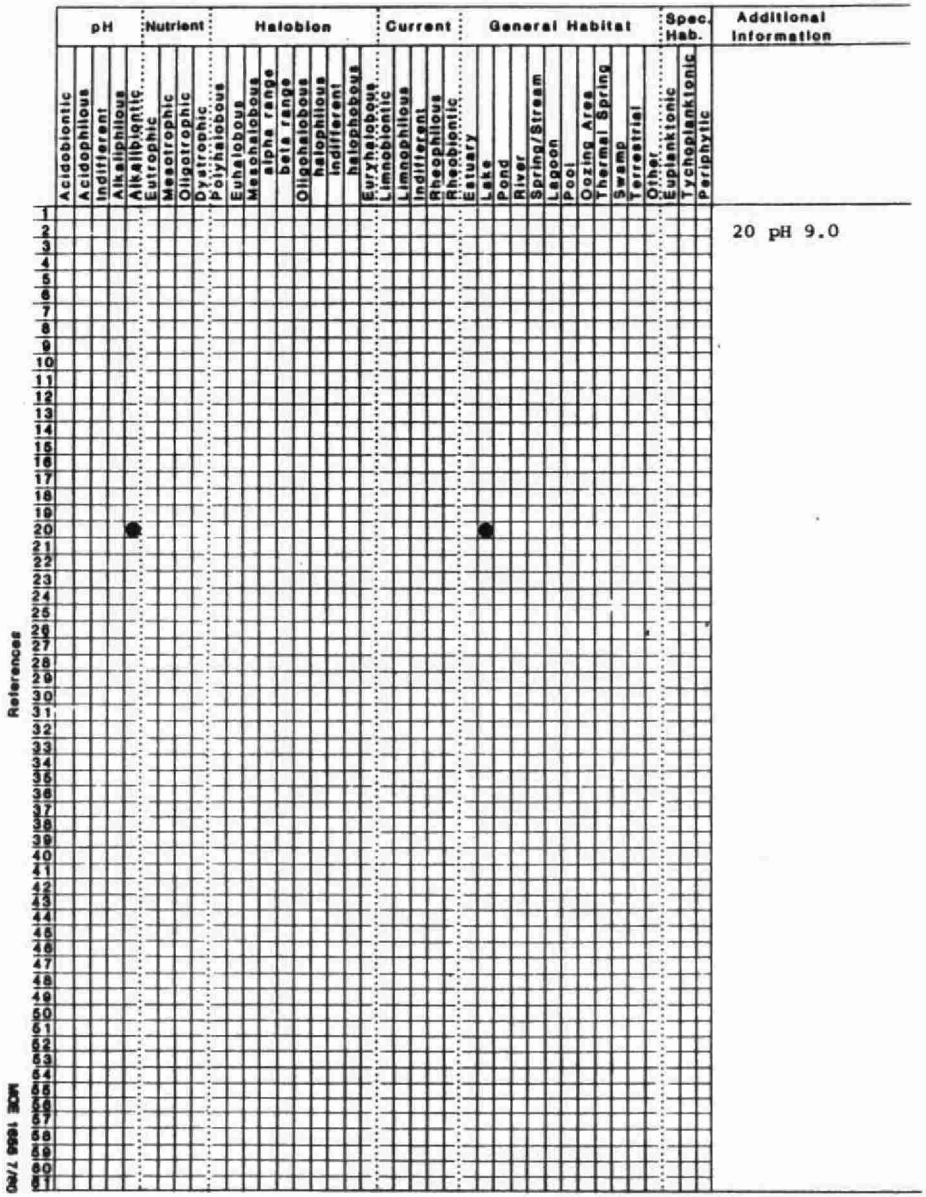


20 pH less than 4.0-9.0 + 6.6 +

Ministry of the Environment
Ontario

Taxon Navicula platystoma var. minor Schulz.

Synonym

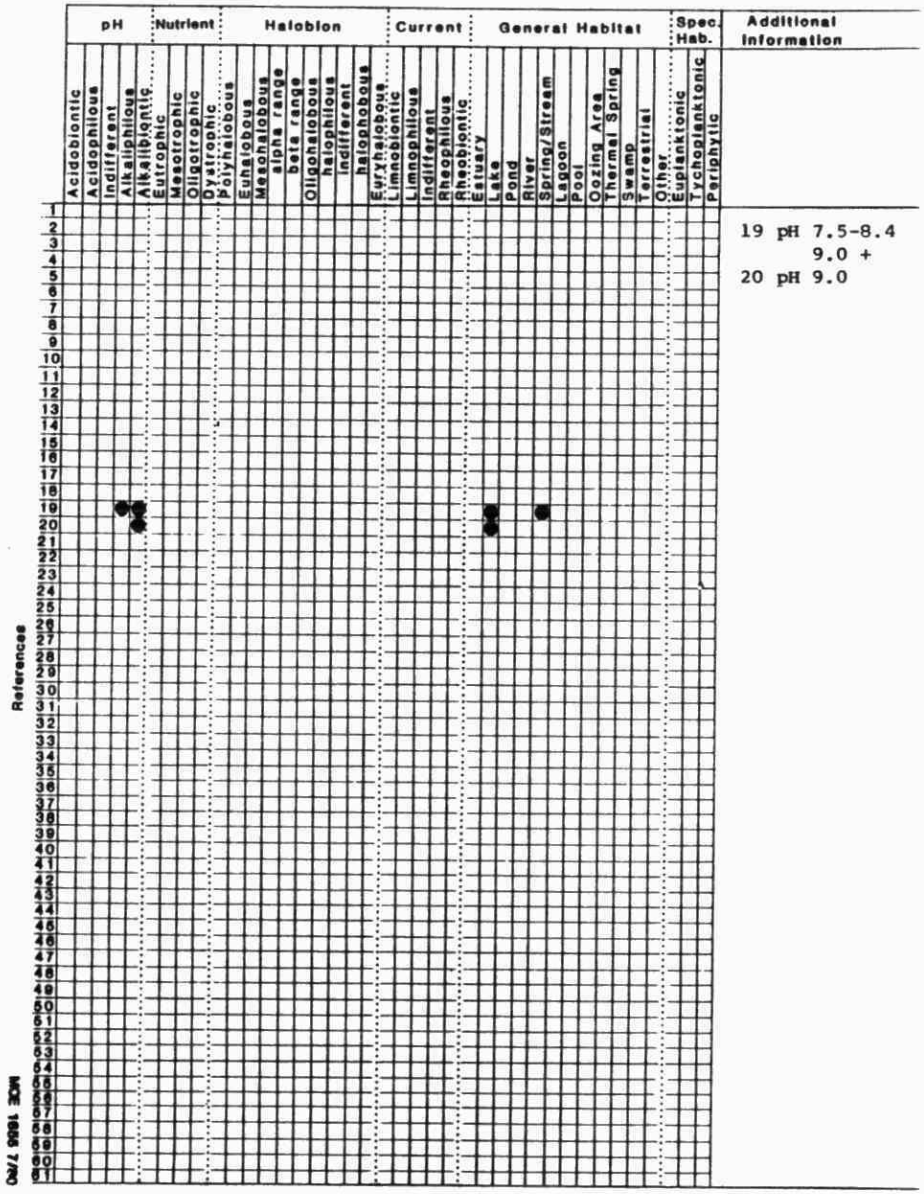


20 pH 9.0

Ministry of the Environment
Ontario

Taxon Navicula porifera Hust.

Synonym



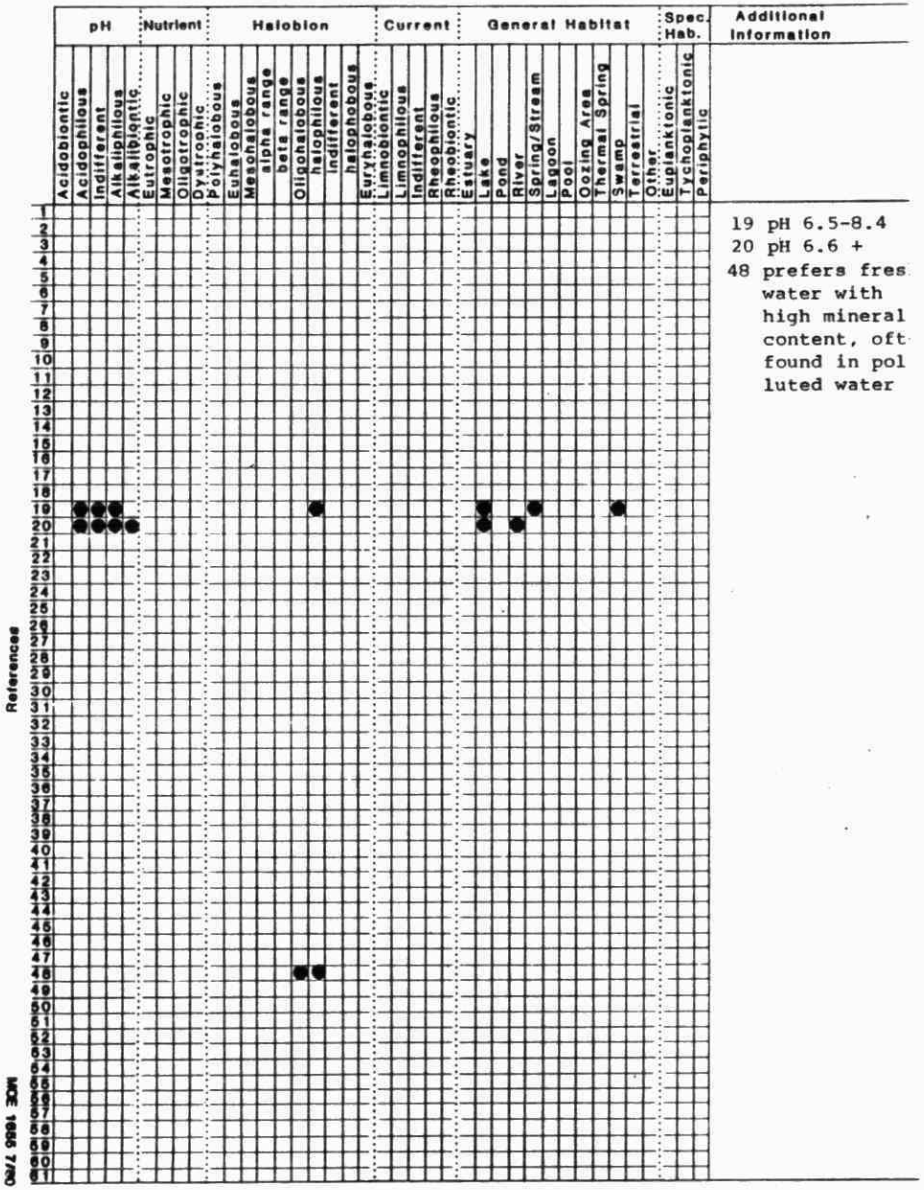
Additional information

19 pH 7.5-8.4
9.0 +
20 pH 9.0

Ministry of the Environment
Ontario

Taxon Navicula protracta Grun. var. protracta

Synonym Navicula crucicula var. protracta (Grun.) V.H.



Additional information

19 pH 6.5-8.4
20 pH 6.6 +
48 prefers fres
water with
high mineral
content, oft
found in pol
luted water

Ministry of the Environment
Ontario

Taxon Navicula protracta f. elliptica Gallik

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula pseudohalophila Chol.

Synonym

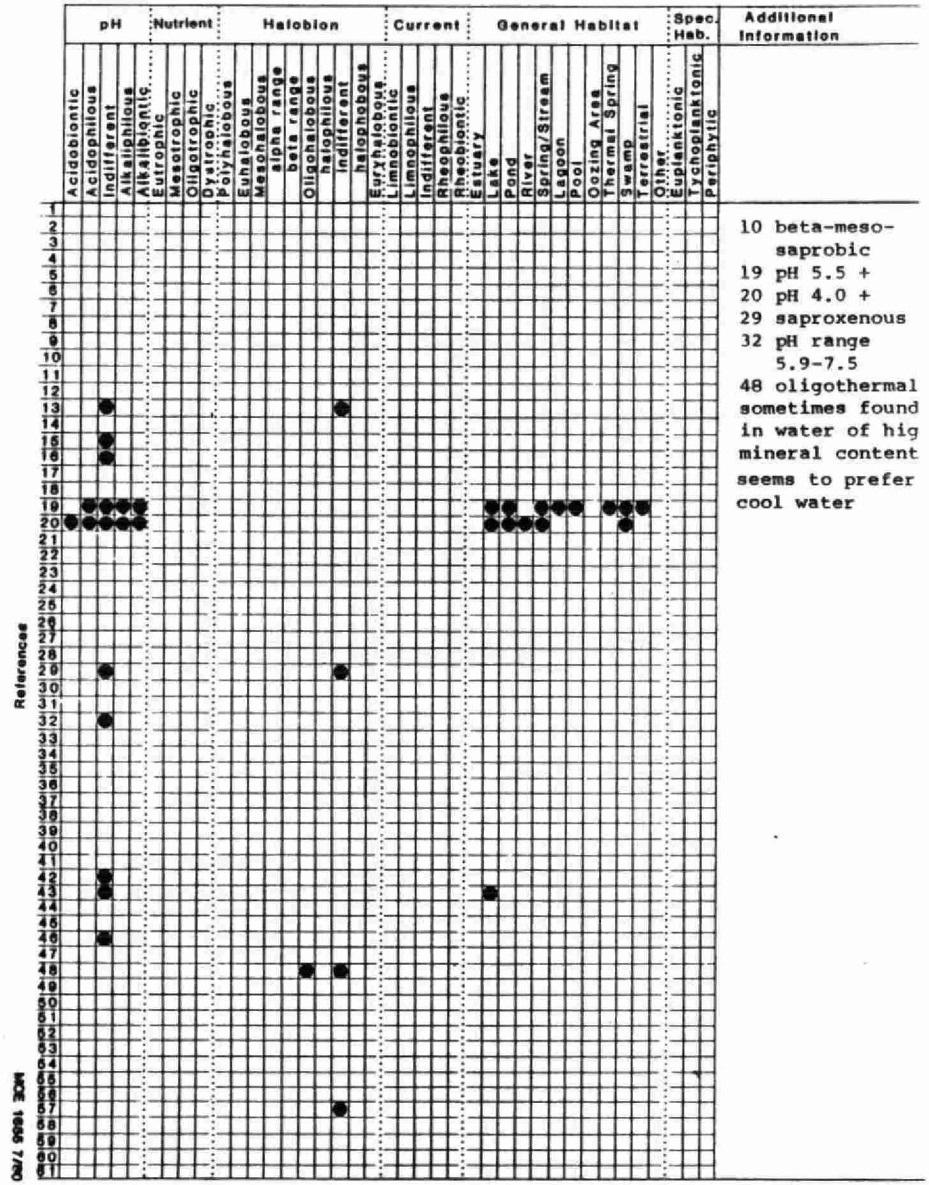
References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula pseudoscutiformis Hust.

Synonym

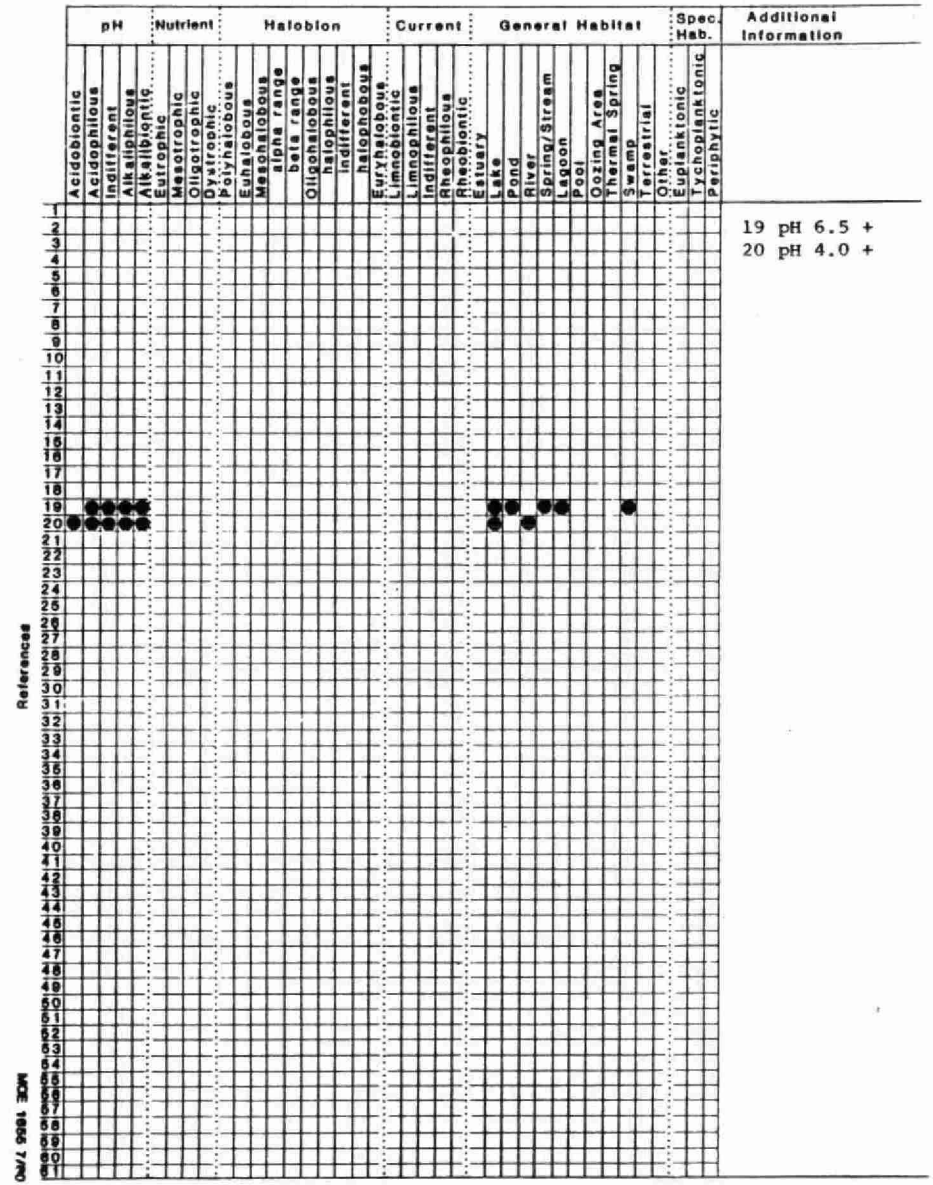


10 beta-meso-saprobic
19 pH 5.5 +
20 pH 4.0 +
29 saproxenous
32 pH range 5.9-7.5
48 oligothermal sometimes found in water of hig mineral content seems to prefer cool water

Ministry of the Environment
Ontario

Taxon Navicula pseudotuscula Hust.

Synonym

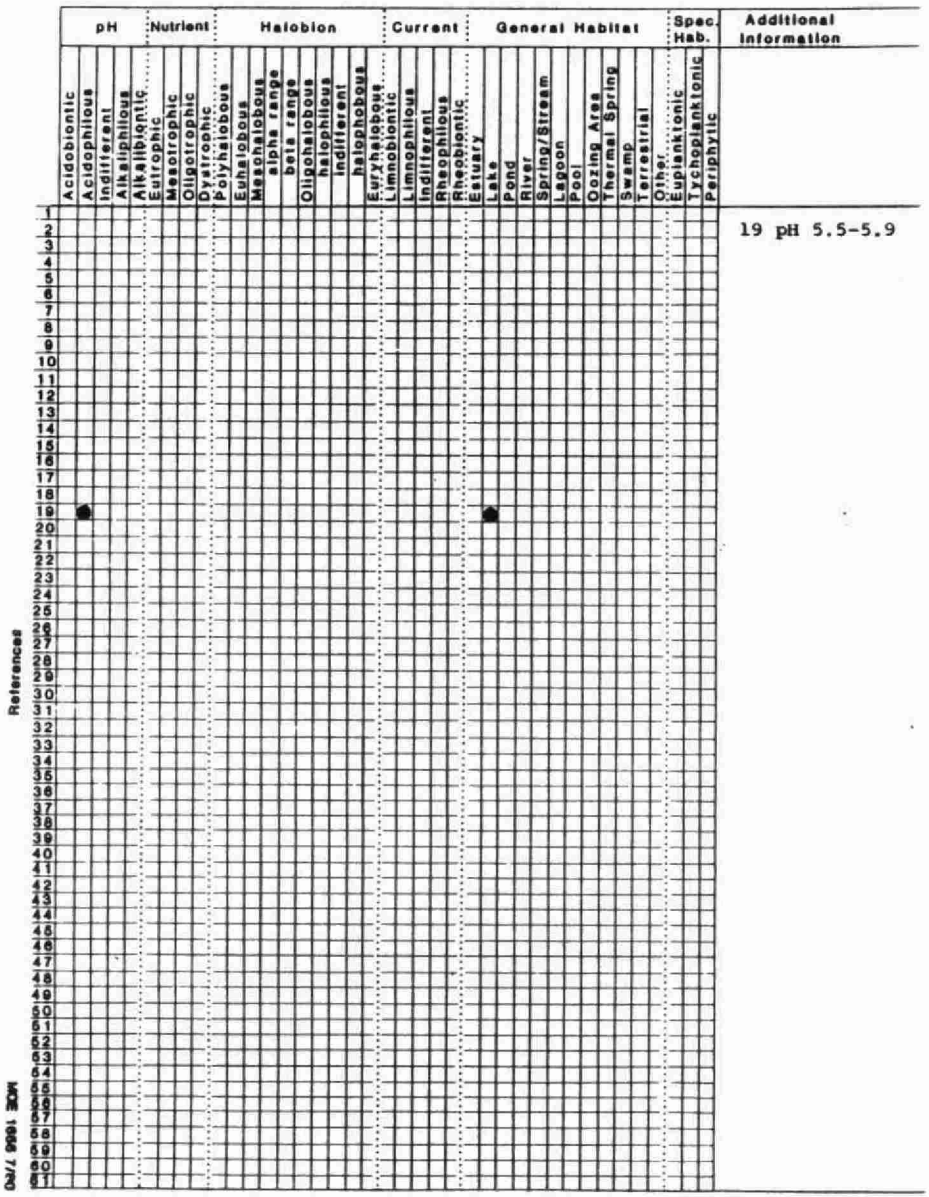


19 pH 6.5 +
20 pH 4.0 +

Ministry of the Environment
Ontario

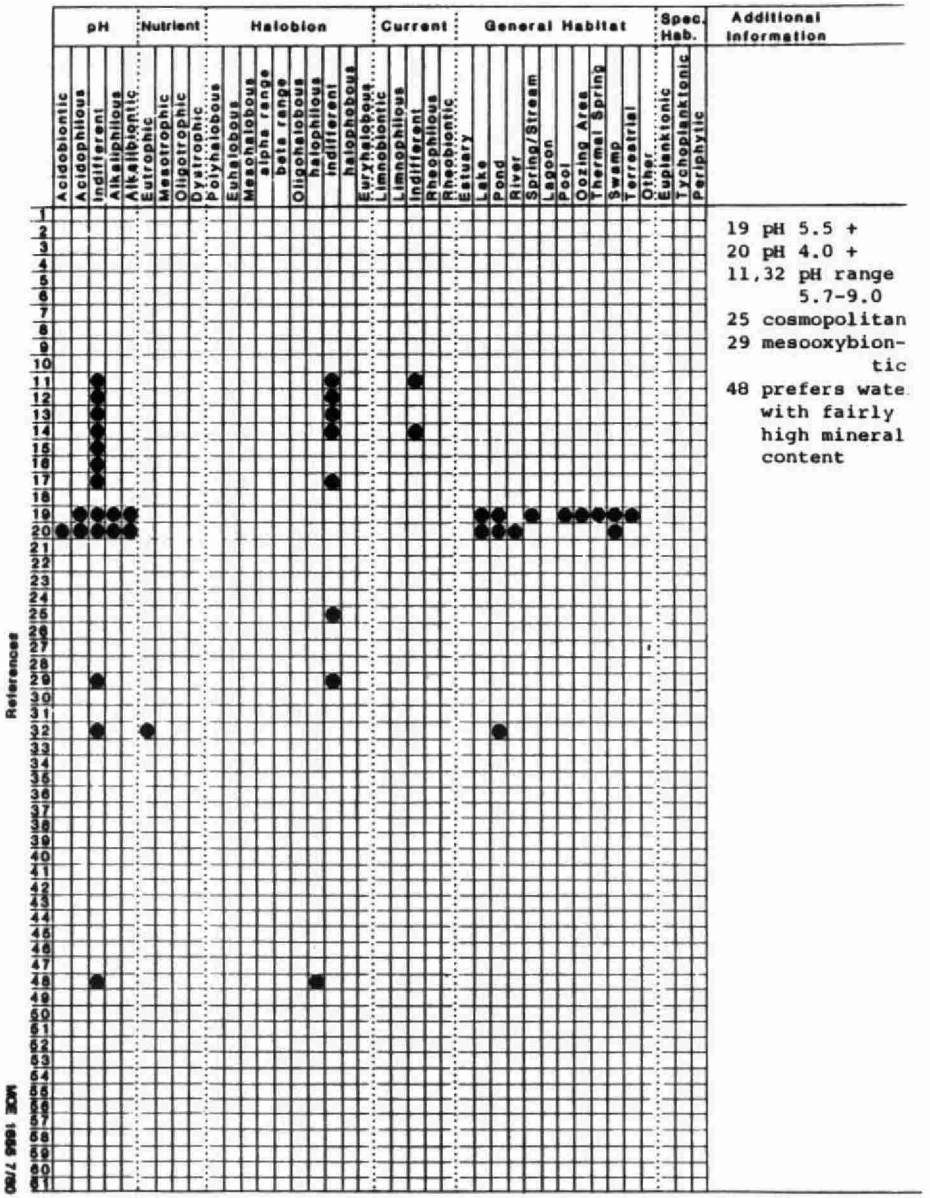
Taxon Navicula pseudoventralis Hust.

Synonym



Taxon Navicula pupula var. capitata Skv. & Meyer

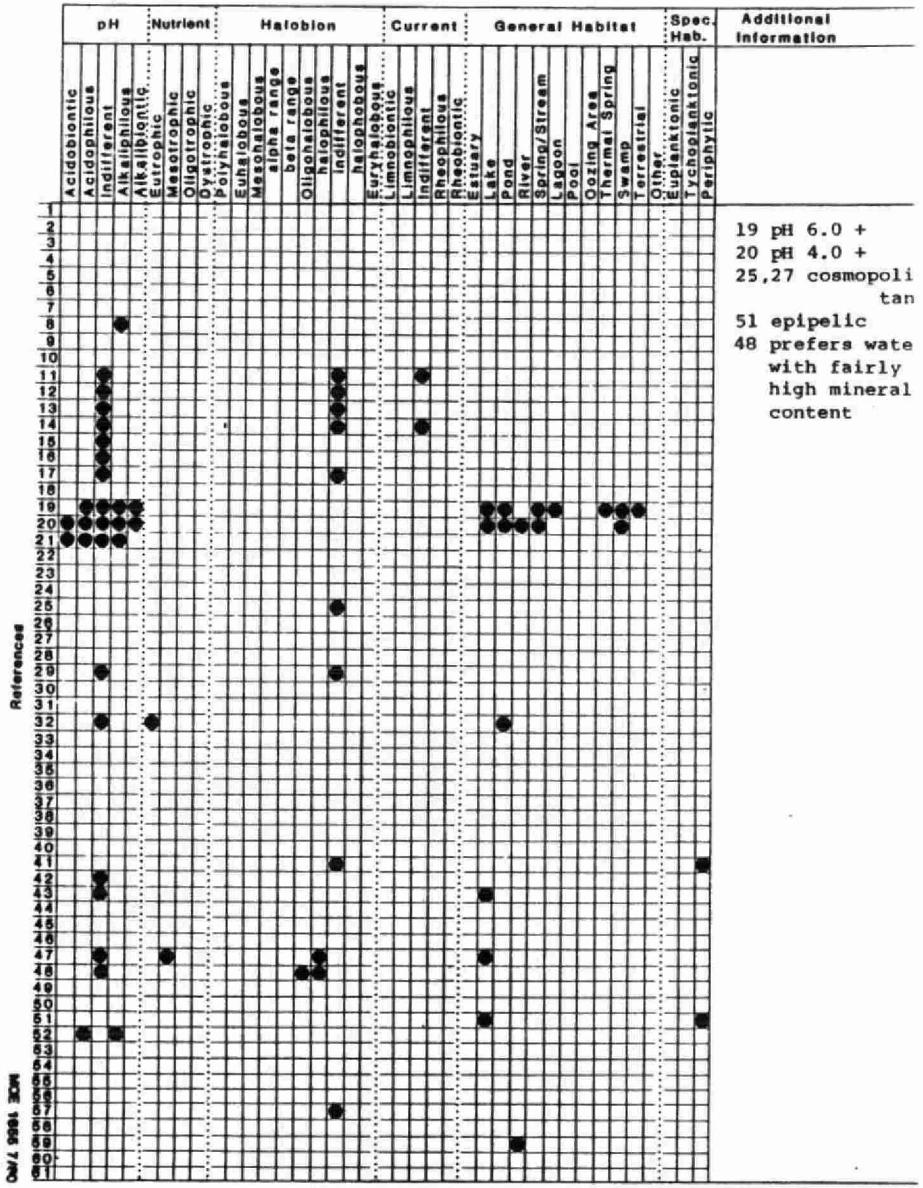
Synonym Navicula pupula f. capitata Skv. & Meyer ? 19,20



Ministry of the Environment
Ontario

Taxon Navicula pupula Kutz. var. pupula

Synonym

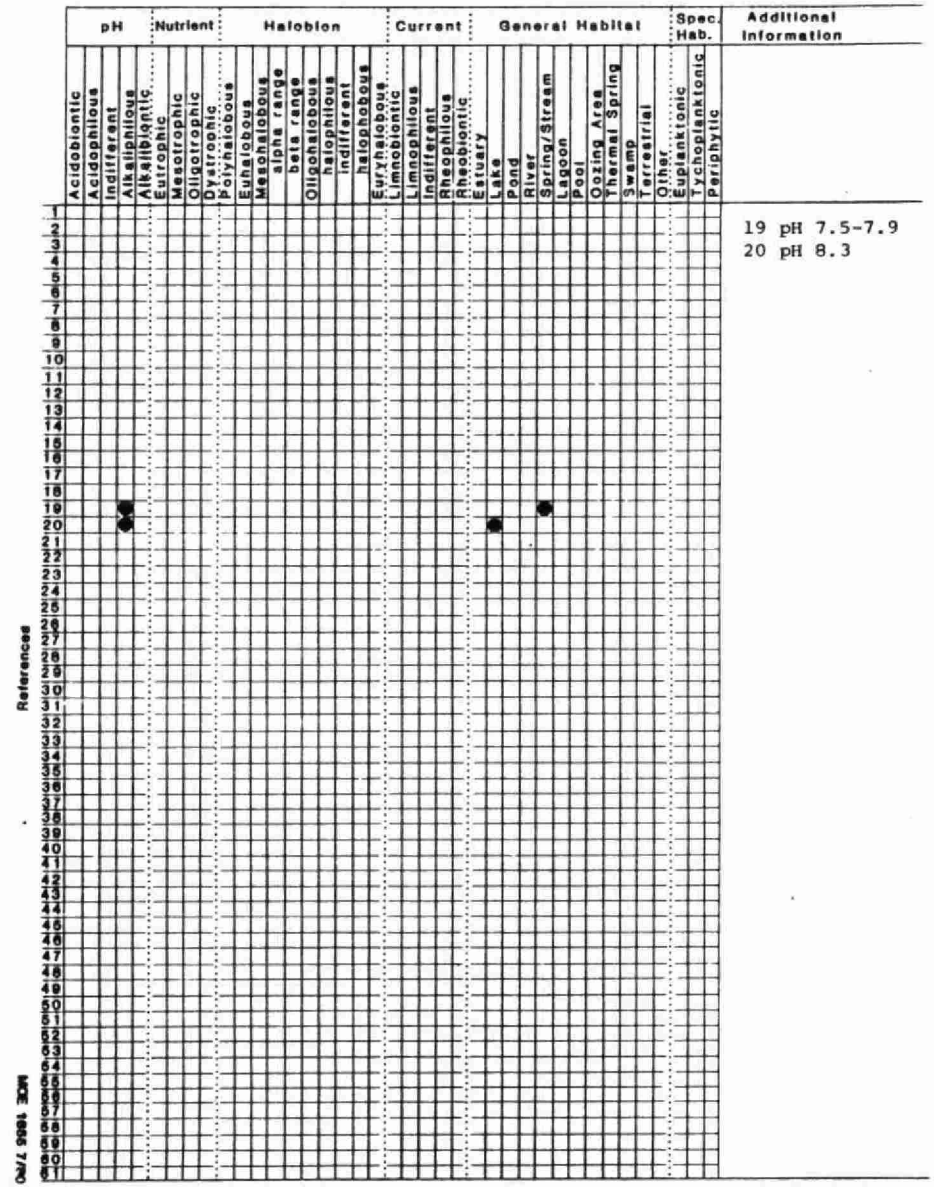


19 pH 6.0 +
20 pH 4.0 +
25,27 cosmopoli tan
51 epipelic
48 prefers wate with fairly high mineral content

Ministry of the Environment
Ontario

Taxon Navicula pupula f. rostrata Hust.

Synonym

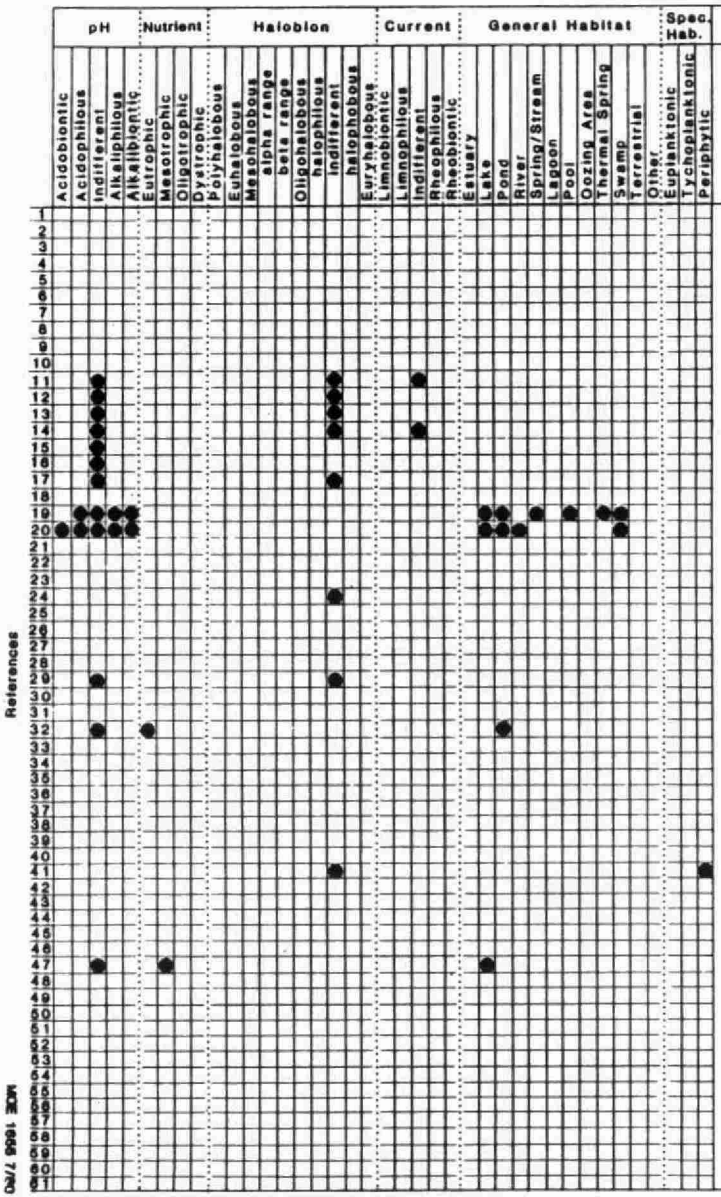


19 pH 7.5-7.9
20 pH 8.3

Ministry of the Environment
Ontario

Taxon Navicula pupula var. rectangularis (Greg.) Grun.

Synonym



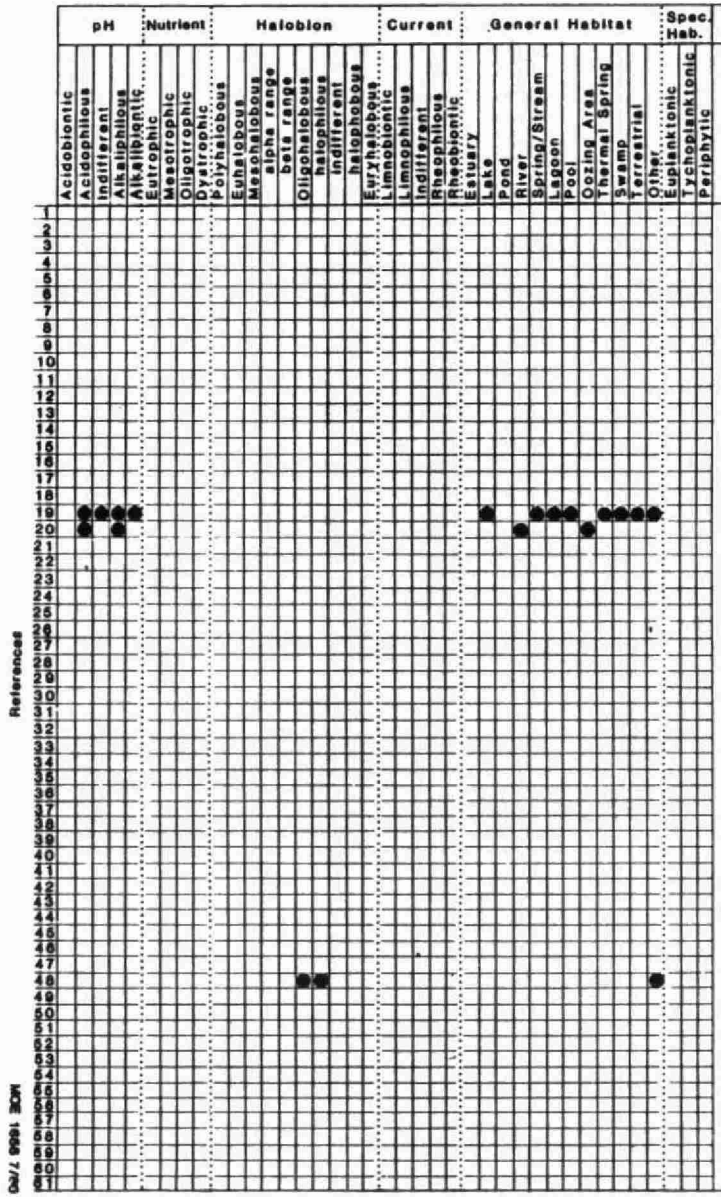
Additional information

11,32 pH range 6.2-8.2
19 pH 6.0 +
20 pH 4.0 +
25 cosmopolitan
29 mesooxybiontic
48 prefers water of higher mineral content than the nominate variety and has been found in salt bogs

Ministry of the Environment
Ontario

Taxon Navicula pusilla W. Sm. var. pusilla

Synonym



Additional information

19 pH 6.5 +
20 pH 4.0-6.5
7.6-8.9
19 aerophilous
48 prefers fresh water of high mineral content
48 aerophilous often found cool temperate areas

Ministry of the Environment
Ontario

Taxon Navicula pusilla f. pulchra (Greg.) Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
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Taxon Navicula pusio Cl.

Synonym

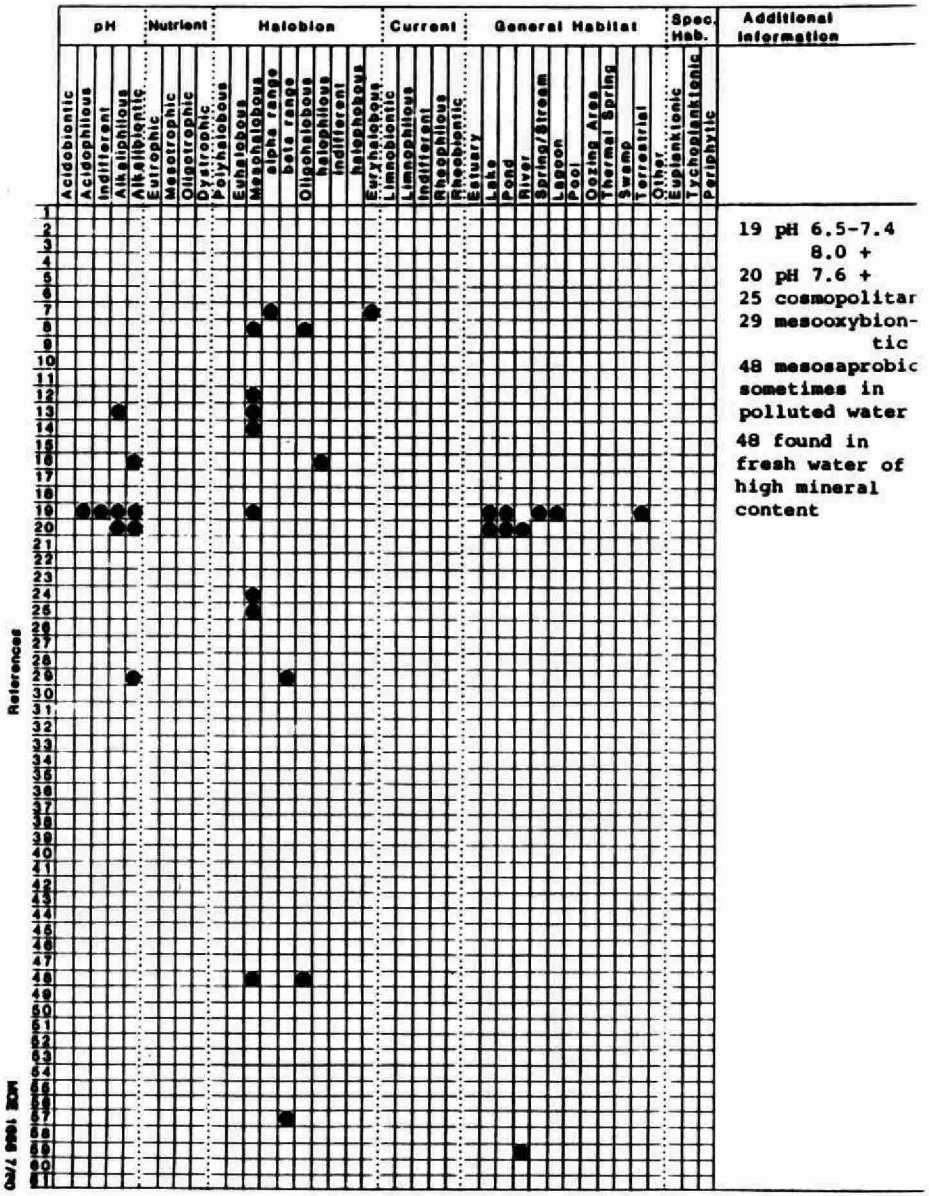
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythermobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Ministry of the Environment
Ontario

Taxon Navicula pygmaea Kutz.

Synonym

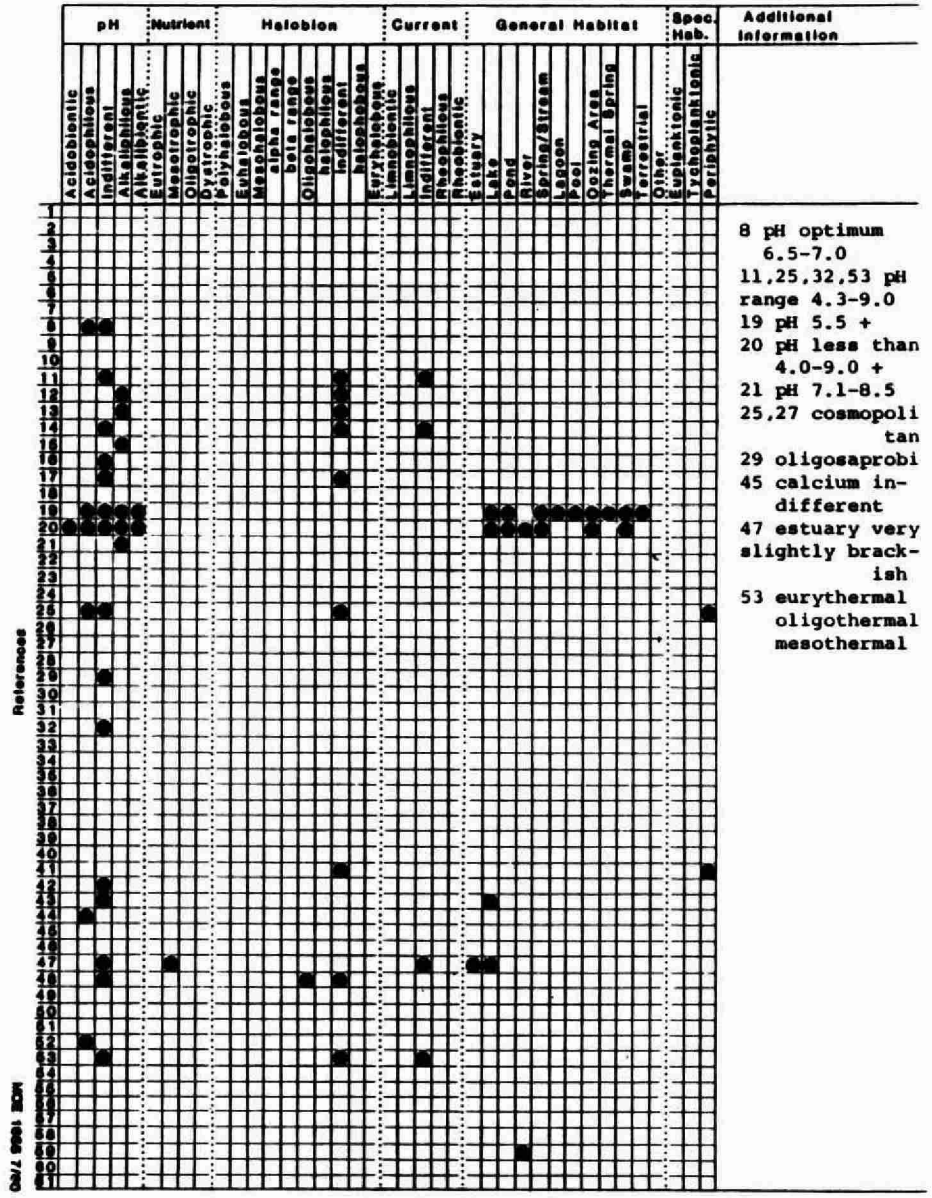


19 pH 6.5-7.4 8.0 +
20 pH 7.6 +
25 cosmopolitar
29 mesooxybiontic
48 mesosaprobic sometimes in polluted water
48 found in fresh water of high mineral content

Ministry of the Environment
Ontario

Taxon Navicula radiosa Kutz. var. radiosa

Synonym

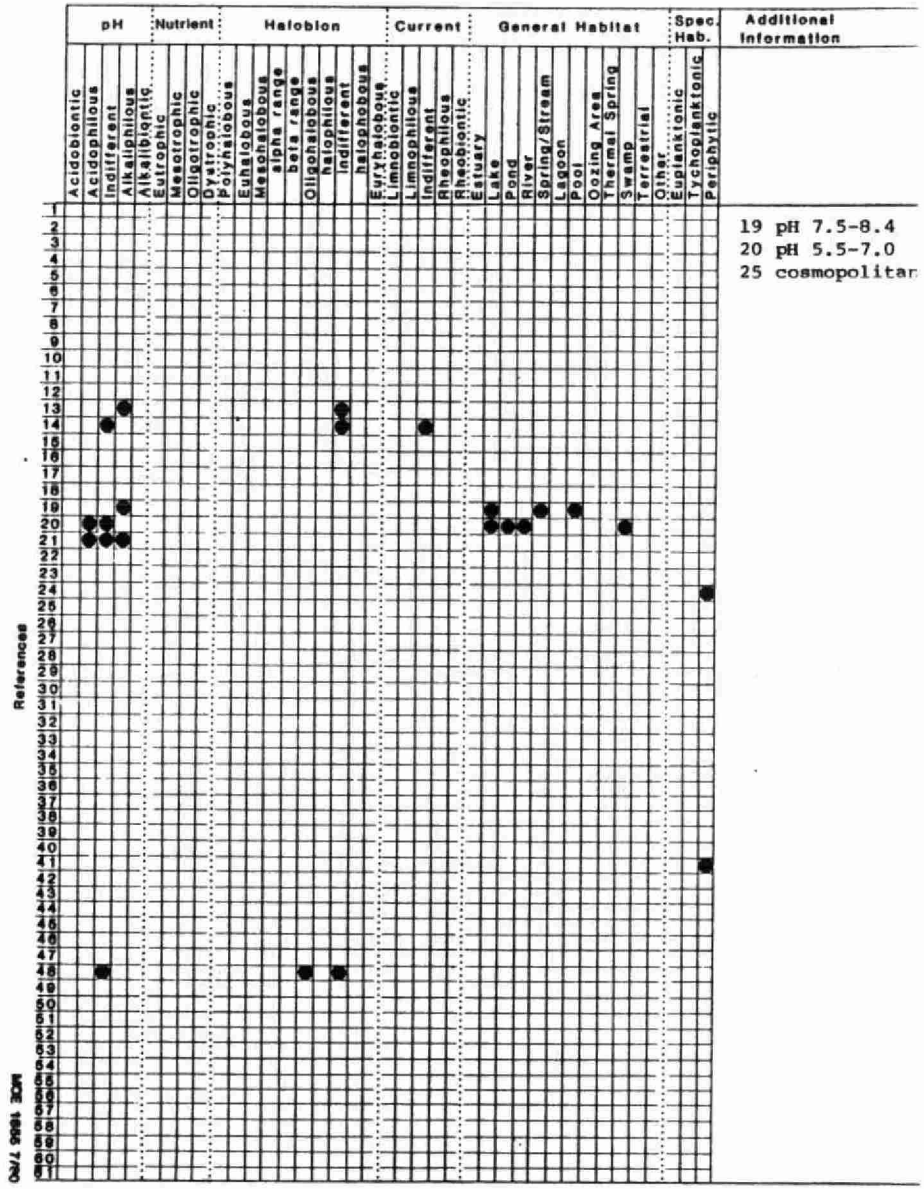


8 pH optimum 6.5-7.0
11,25,32,53 pH range 4.3-9.0
19 pH 5.5 +
20 pH less than 4.0-9.0 +
21 pH 7.1-8.5
25,27 cosmopolitan
29 oligosaprobi
45 calcium indifferent
47 estuary very slightly brackish
53 eurythermal oligothermal mesothermal

Ministry of the Environment
Ontario

Taxon Navicula radiosa var. tenella (Breb. ex Kutz.) Grun.

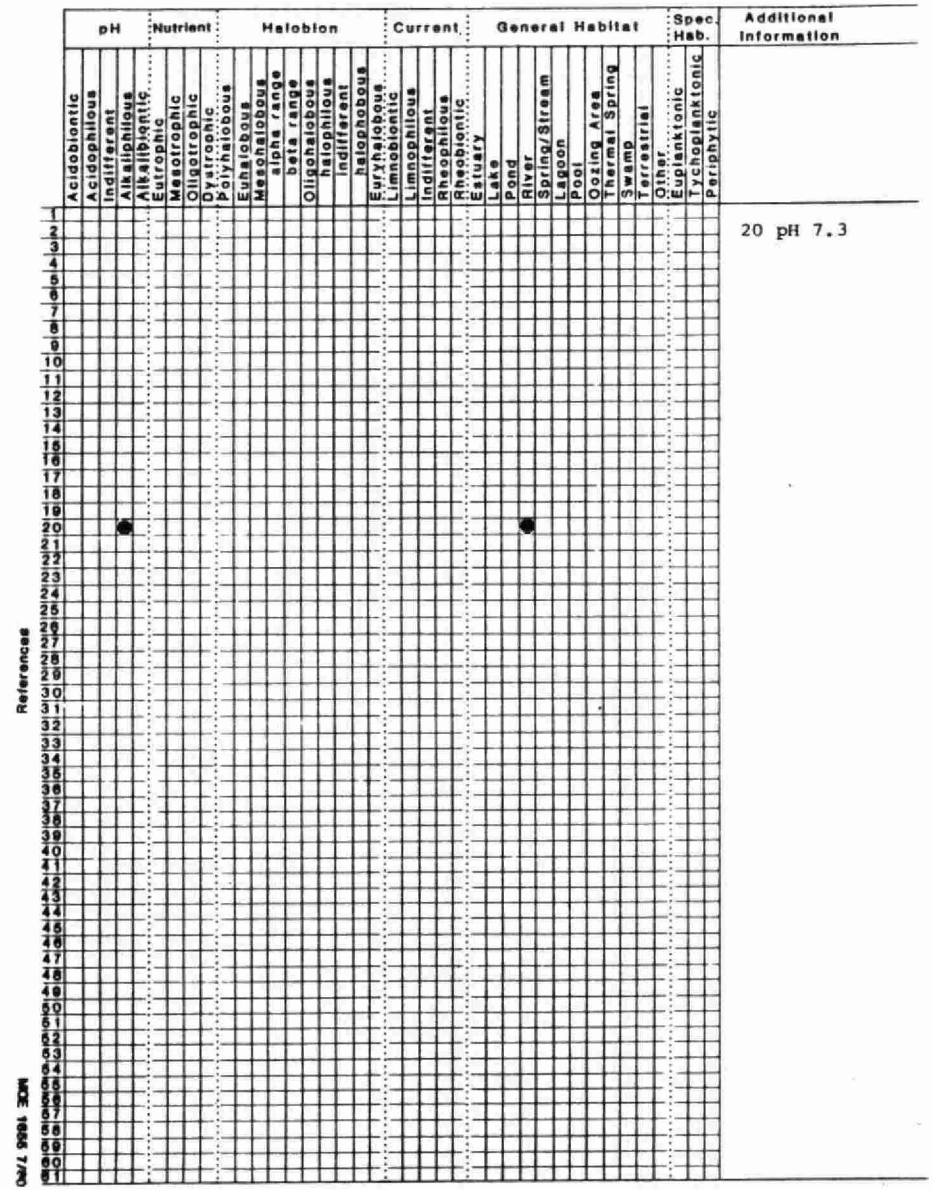
Synonym Navicula tenella Breb ex Kutz.



Ministry of the Environment
Ontario

Taxon Navicula reinhardtii var. elliptica Herib.

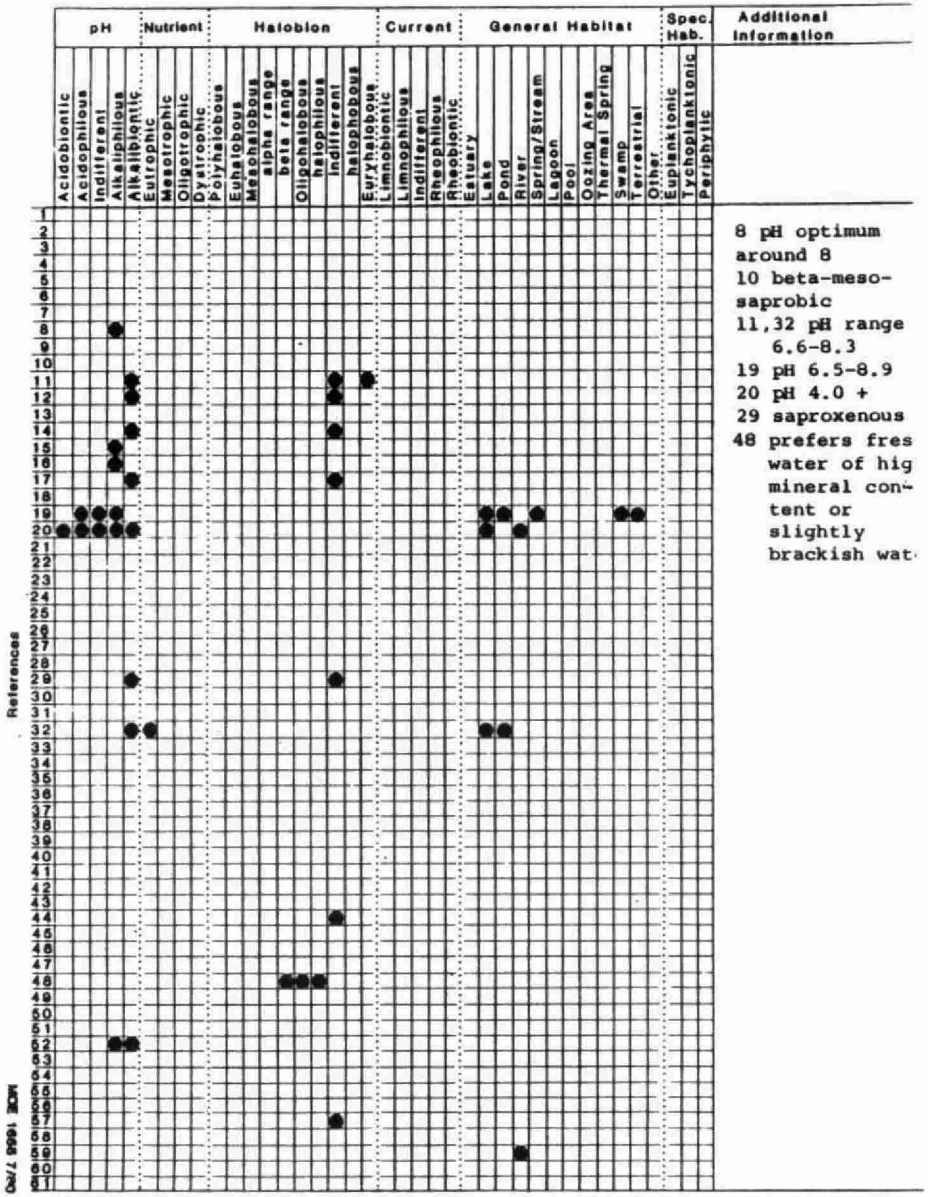
Synonym



Ministry of the Environment
Ontario

Taxon Navicula reinhardtii (Grun.) Grun. var. reinhardtii

Synonym

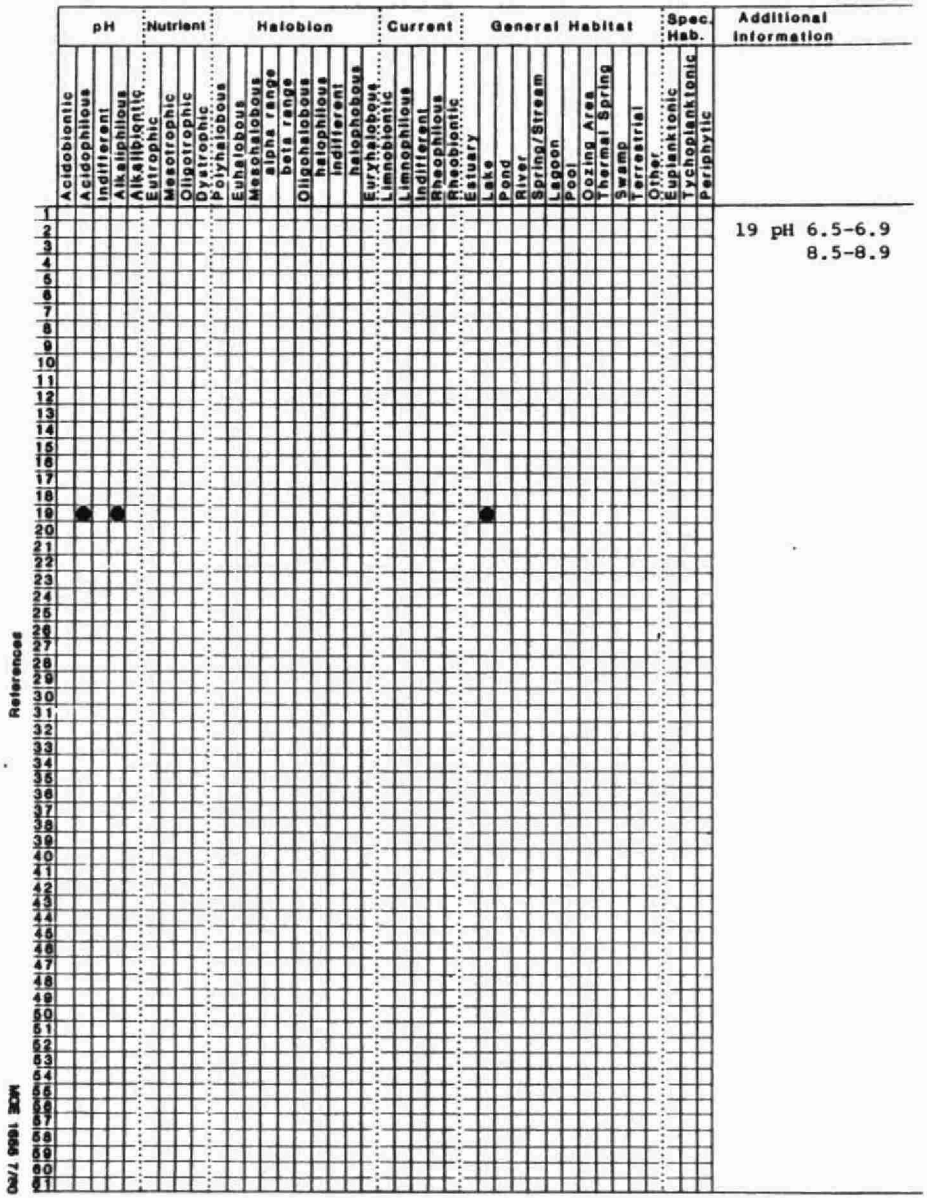


8 pH optimum around 8
10 beta-meso-saprobic
11,32 pH range 6.6-8.3
19 pH 6.5-8.9
20 pH 4.0 +
29 saproxenous
48 prefers fres water of hig mineral con- tent or slightly brackish wat

Ministry of the Environment
Ontario

Taxon Navicula reinhardtii f. gracilior Grun.

Synonym

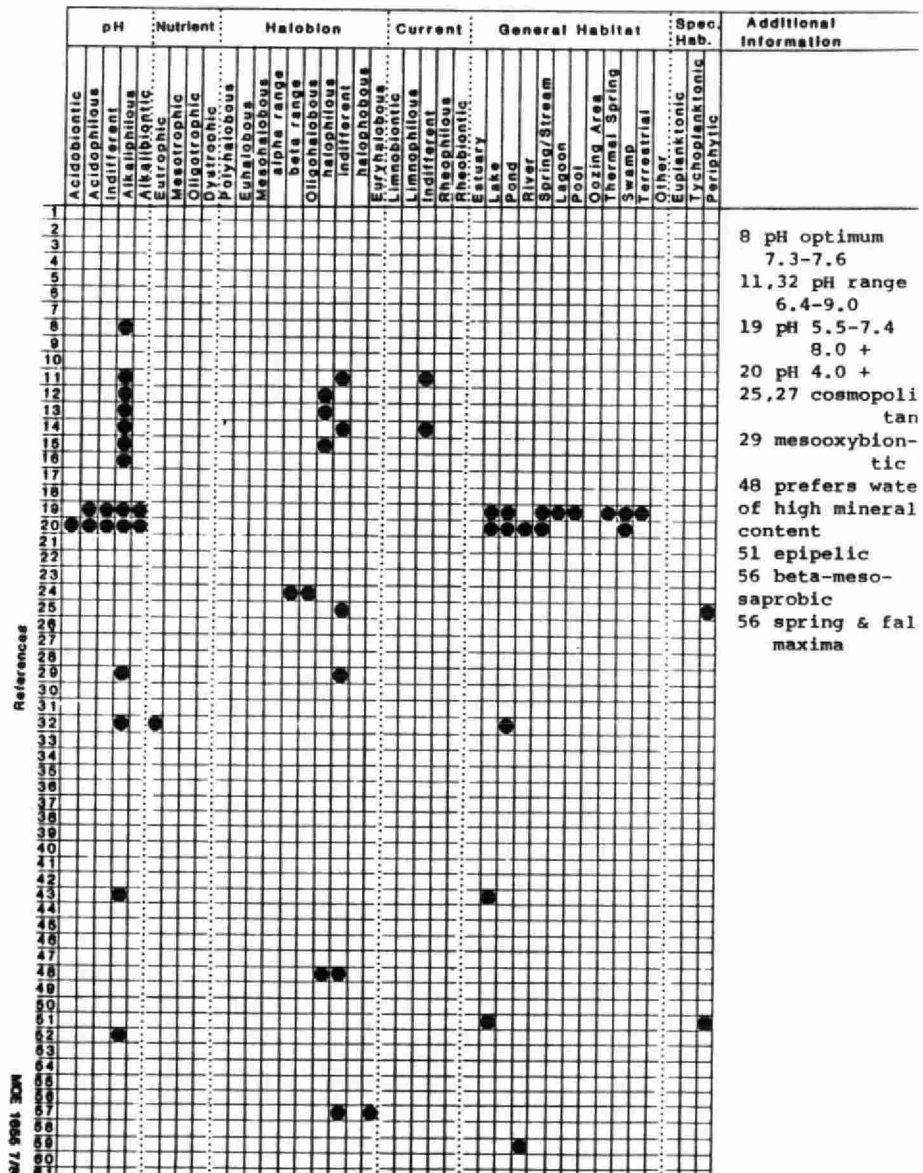


19 pH 6.5-6.9
8.5-8.9

Ministry of the Environment
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Taxon Navicula rhynchocephala Kutz.

Synonym

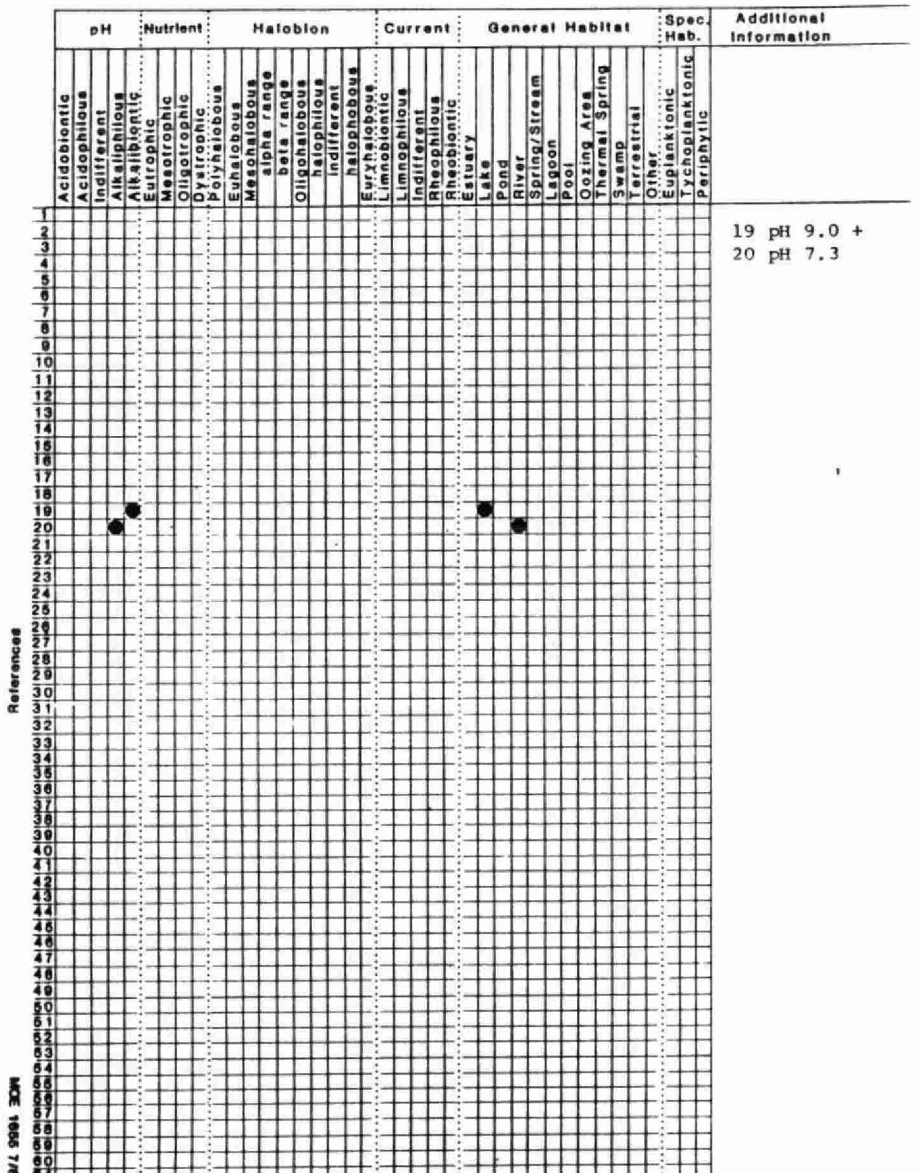


8 pH optimum 7.3-7.6
11,32 pH range 6.4-9.0
19 pH 5.5-7.4 8.0 +
20 pH 4.0 +
25,27 cosmopolitan
29 mesooxybiontic
48 prefers wate of high mineral content
51 epipelic
56 beta-mesosaprobic
56 spring & fal maxima

Ministry of the Environment
Ontario

Taxon Navicula rotunda Hust.

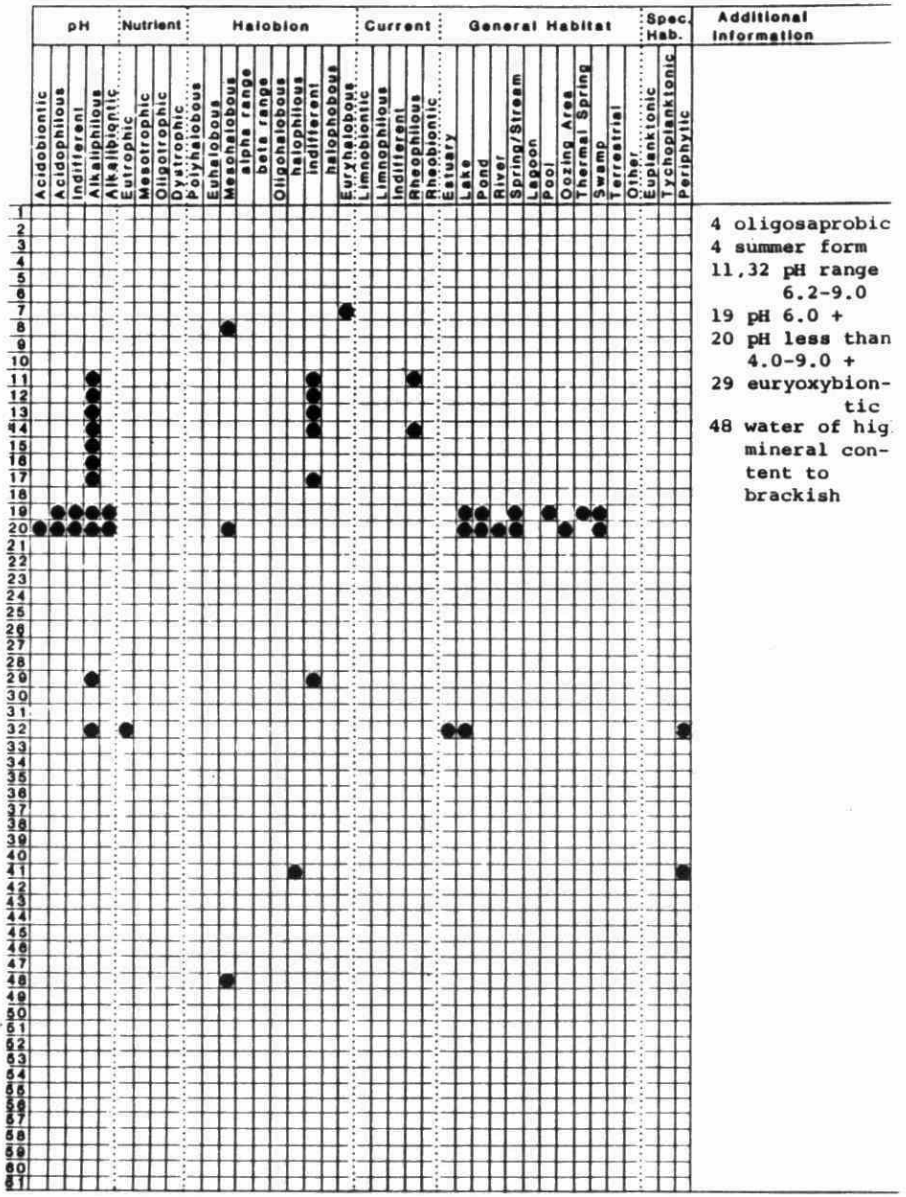
Synonym



19 pH 9.0 +
20 pH 7.3

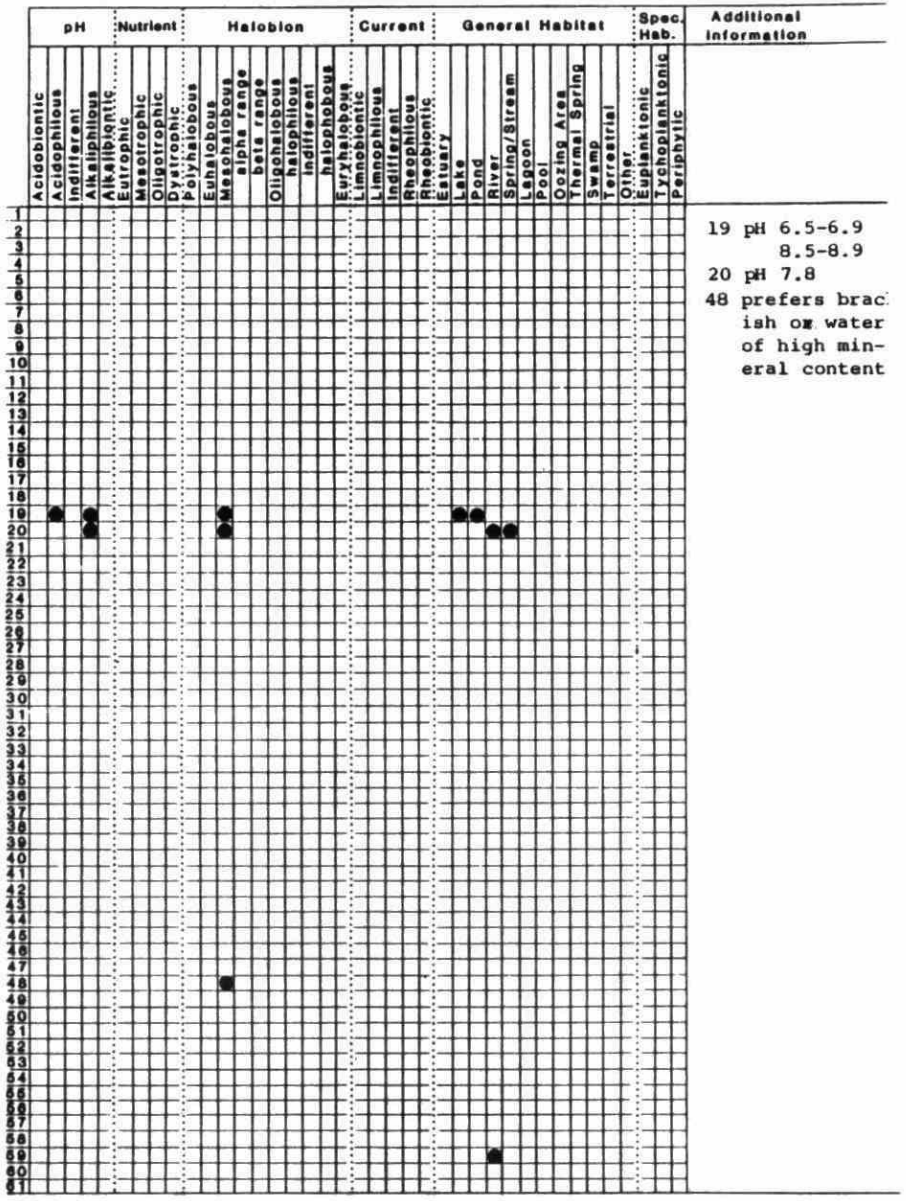
Taxon Navicula salinarum var. intermedia (Grun.) Cl.

Synonym Navicula cryptocephala var intermedia Grun.



Taxon Navicula salinarum Grun. var. salinarum

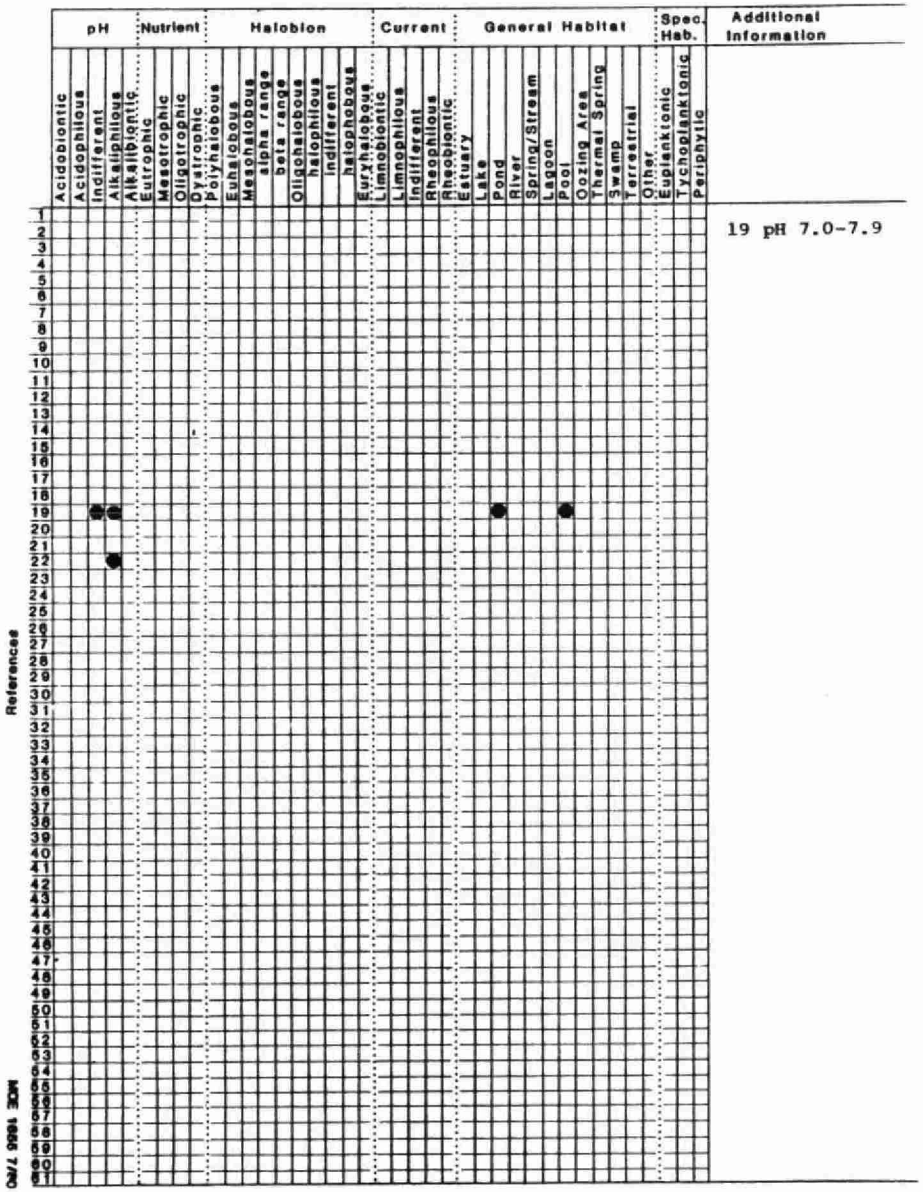
Synonym



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Ontario

Taxon Navicula schadei Krasske

Synonym



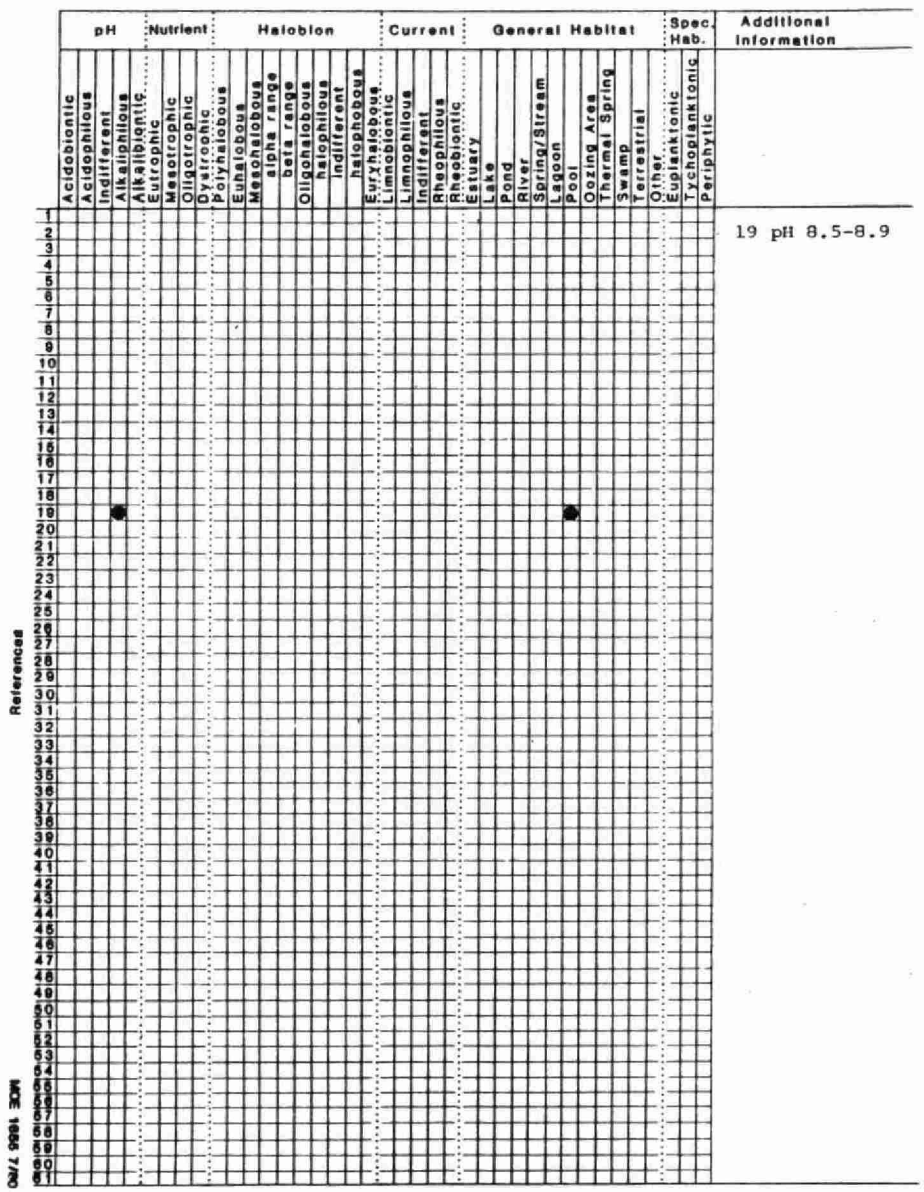
Additional Information

19 pH 7.0-7.9

Ministry of the Environment
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Taxon Navicula schmassmanni Hust.

Synonym



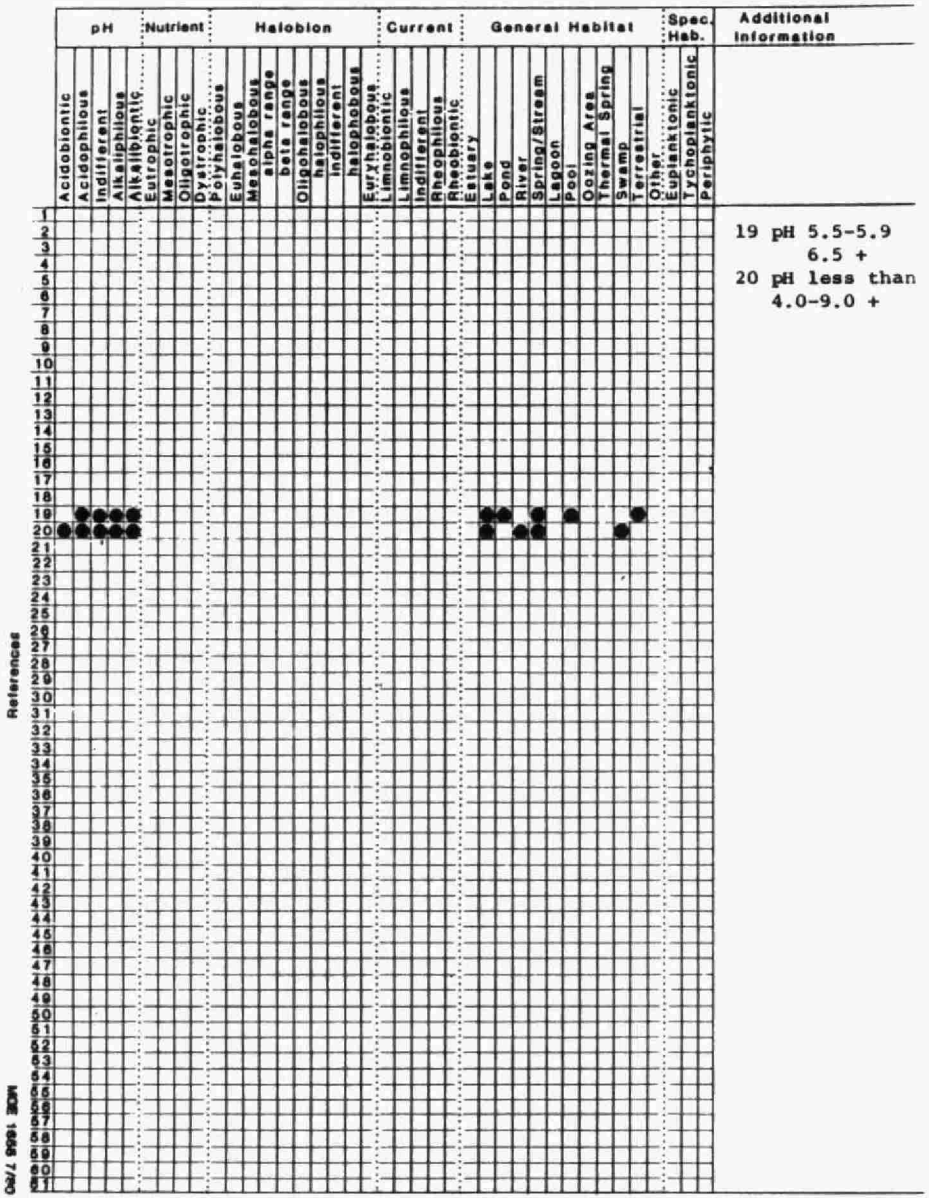
Additional Information

19 pH 8.5-8.9

Ministry of the Environment
Ontario

Taxon Navicula schonfeldii Hust.

Synonym



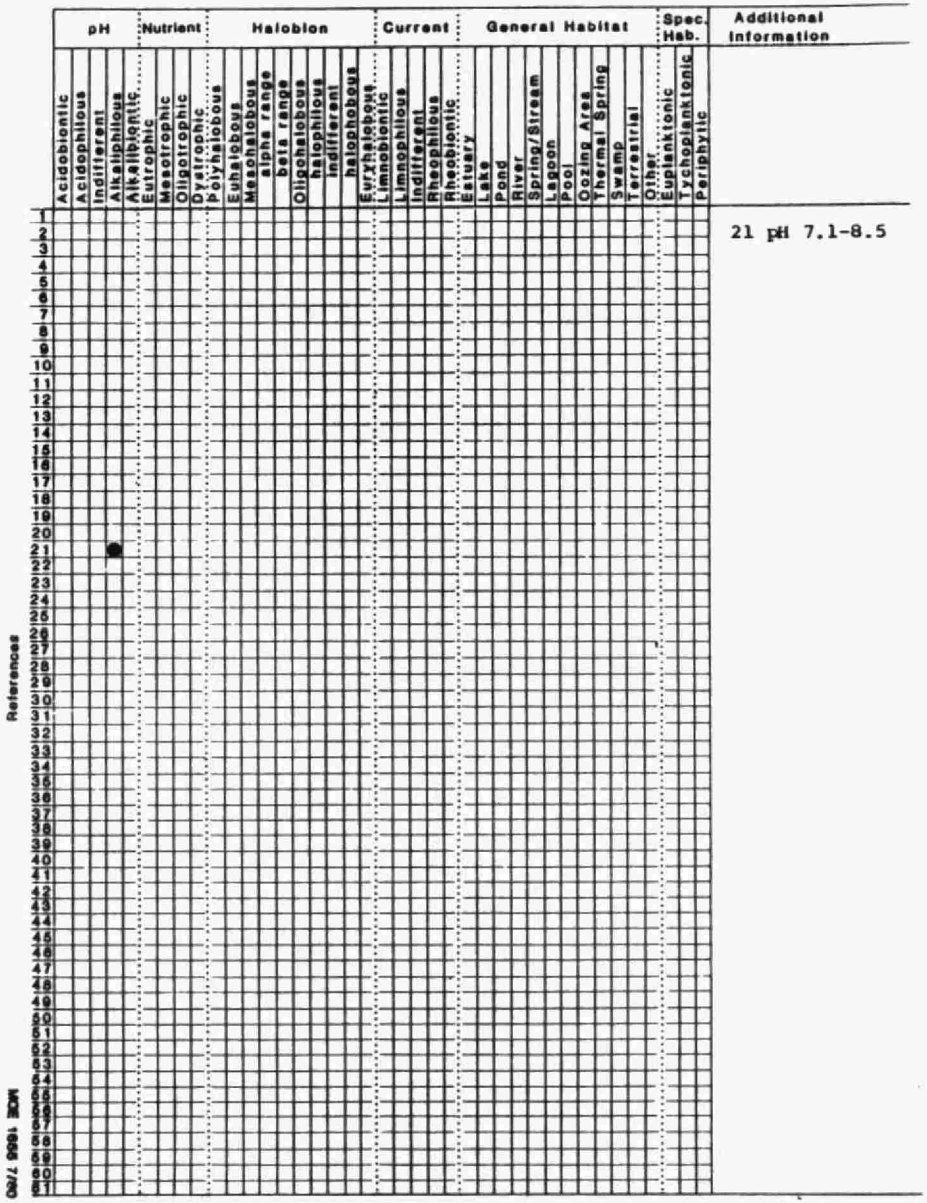
Additional information

19 pH 5.5-5.9
6.5 +
20 pH less than
4.0-9.0 +

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Ontario

Taxon Navicula schroeteri

Synonym



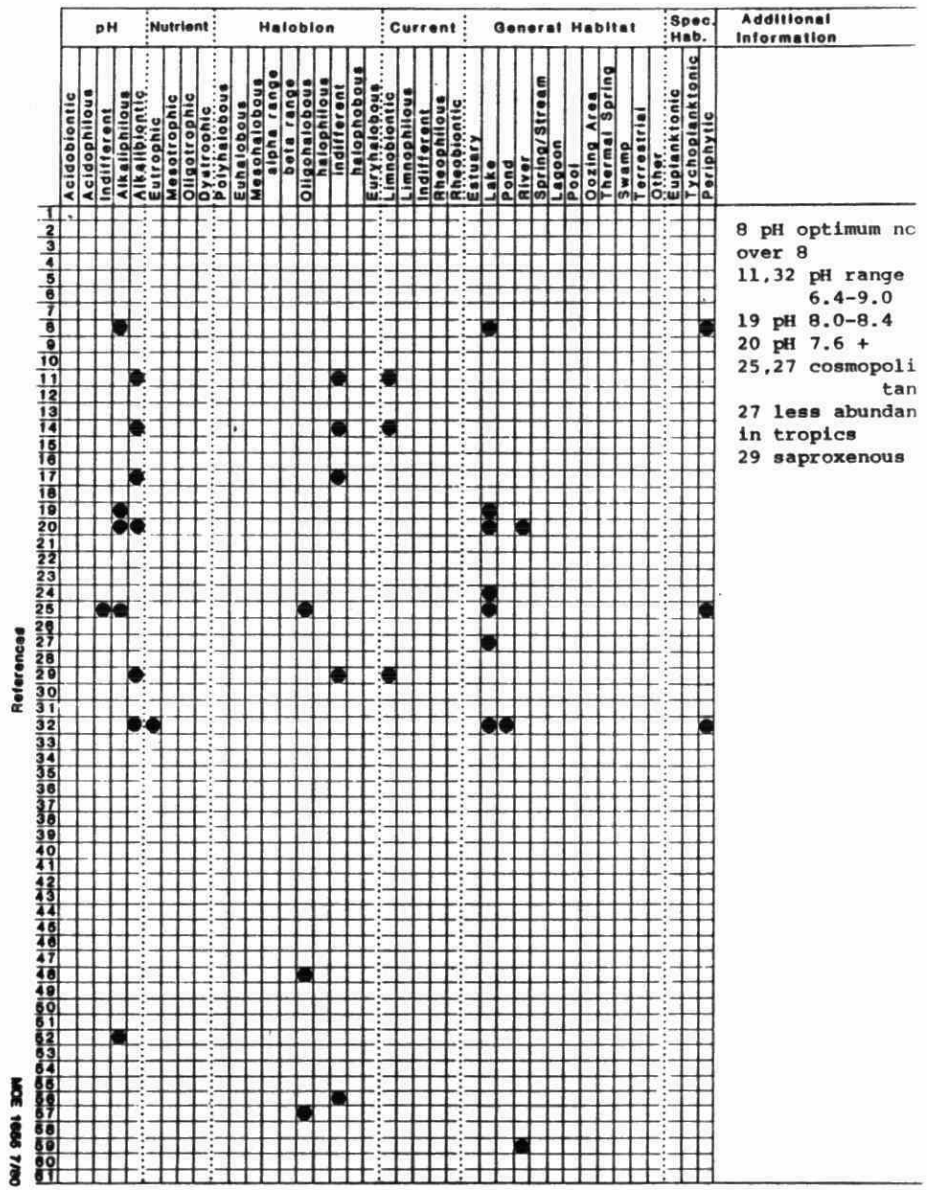
Additional information

21 pH 7.1-8.5

Ministry of the Environment
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Taxon Navicula scutelloides W. Sm. ex Greg.

Synonym

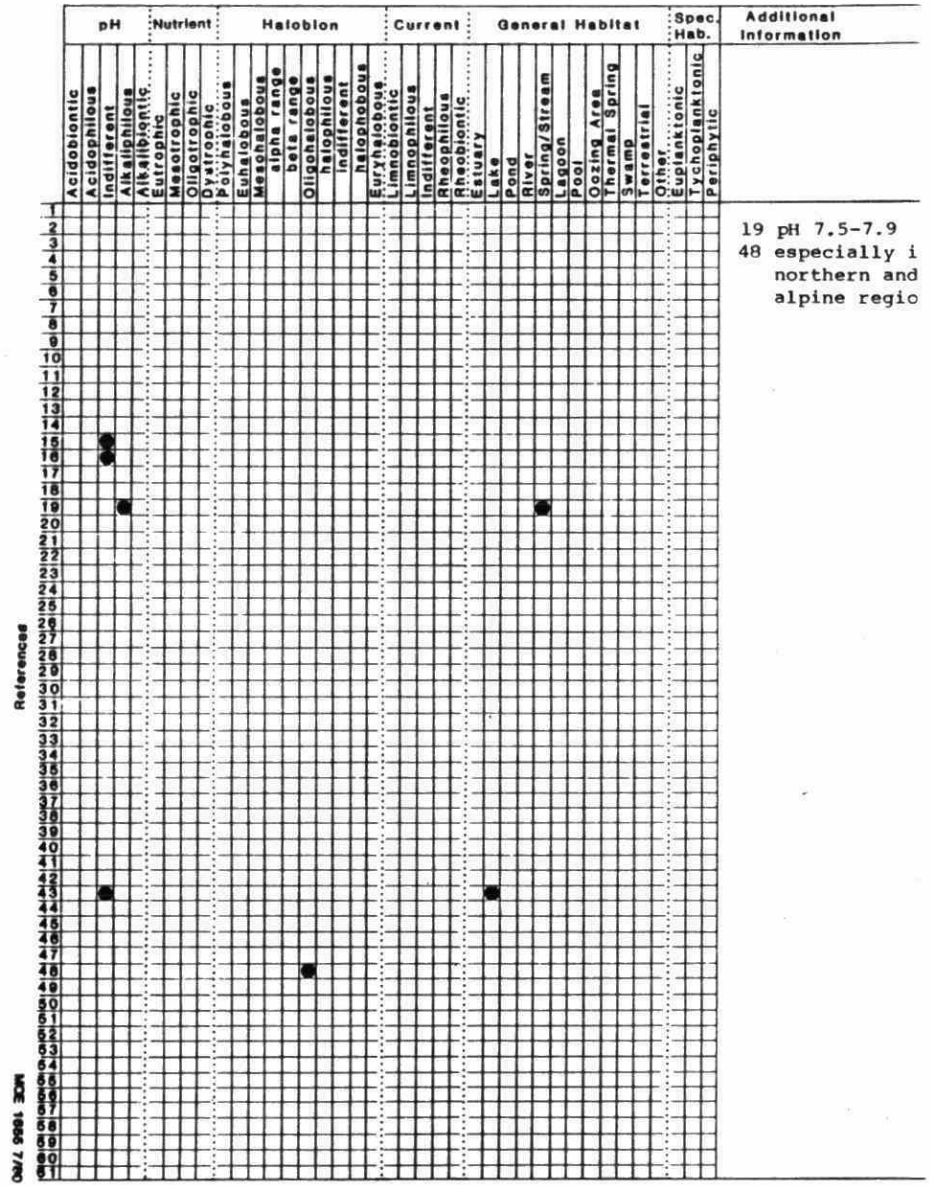


8 pH optimum nc
over 8
11,32 pH range
6.4-9.0
19 pH 8.0-8.4
20 pH 7.6 +
25,27 cosmopoli
tan
27 less abundan
in tropics
29 saproxenous

Ministry of the Environment
Ontario

Taxon Navicula scutiformis Grun. ex A.S.

Synonym

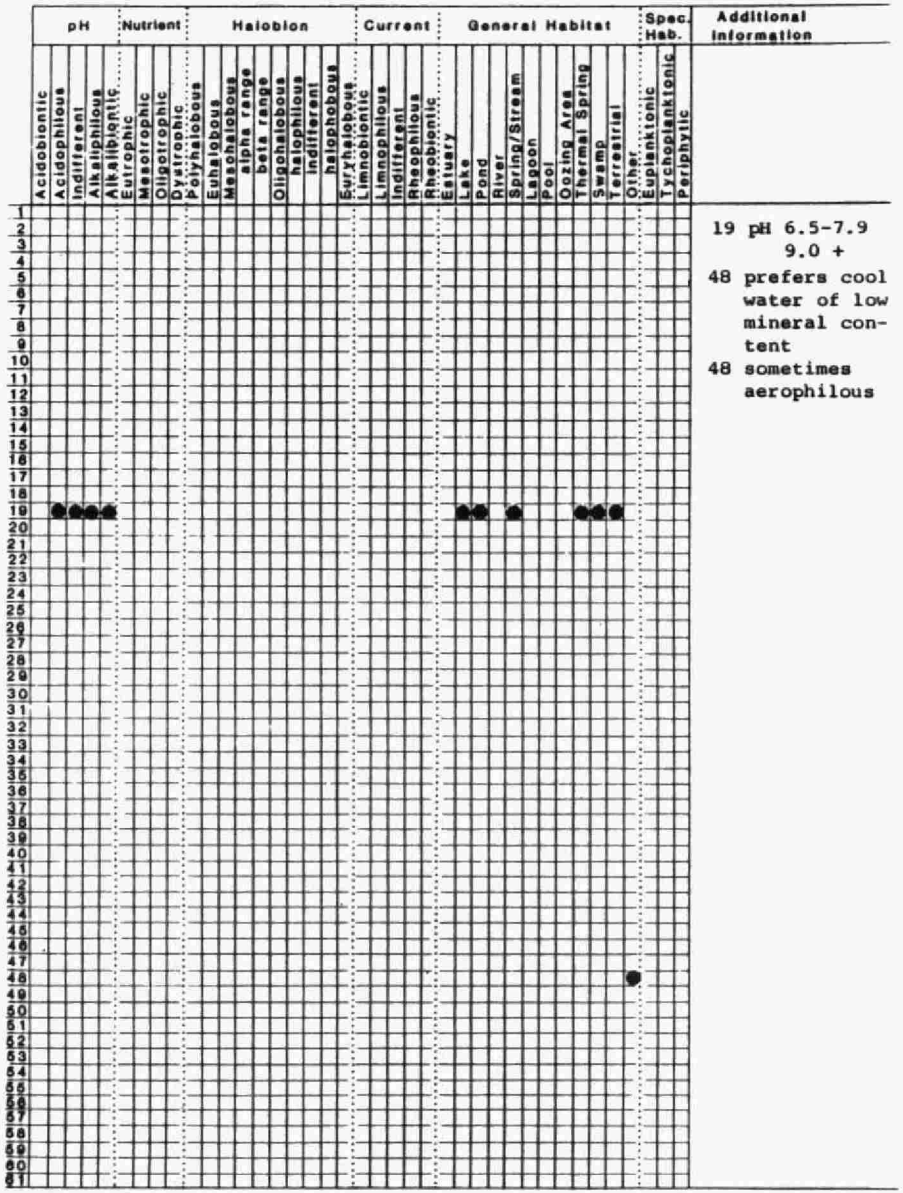


19 pH 7.5-7.9
48 especially i
northern and
alpine regio

Ministry of the Environment
Ontario

Taxon Navicula semen Ehr, emend. Donk

Synonym



19 pH 6.5-7.9
9.0 +

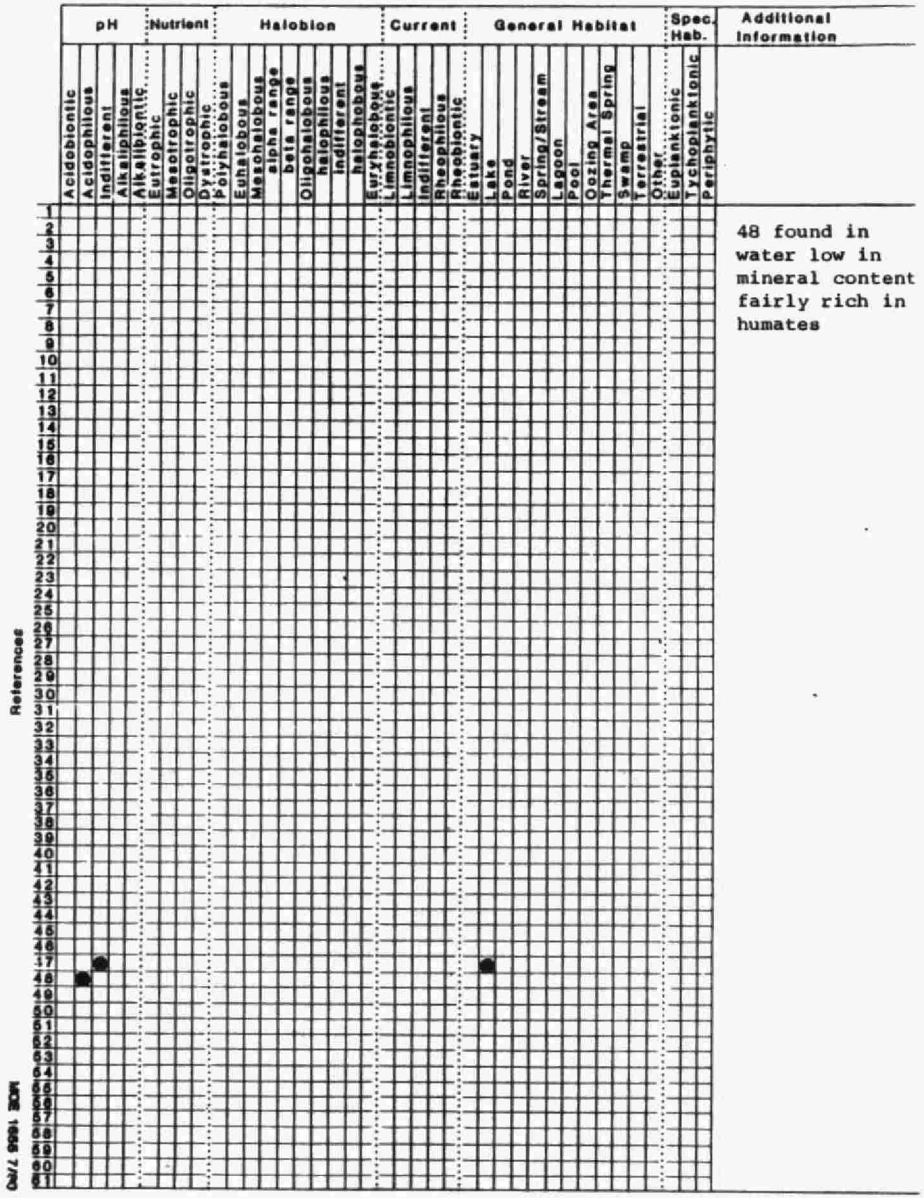
48 prefers cool water of low mineral content

48 sometimes aerophilous

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Taxon Navicula seminulum var. hustedtii Patr.

Synonym

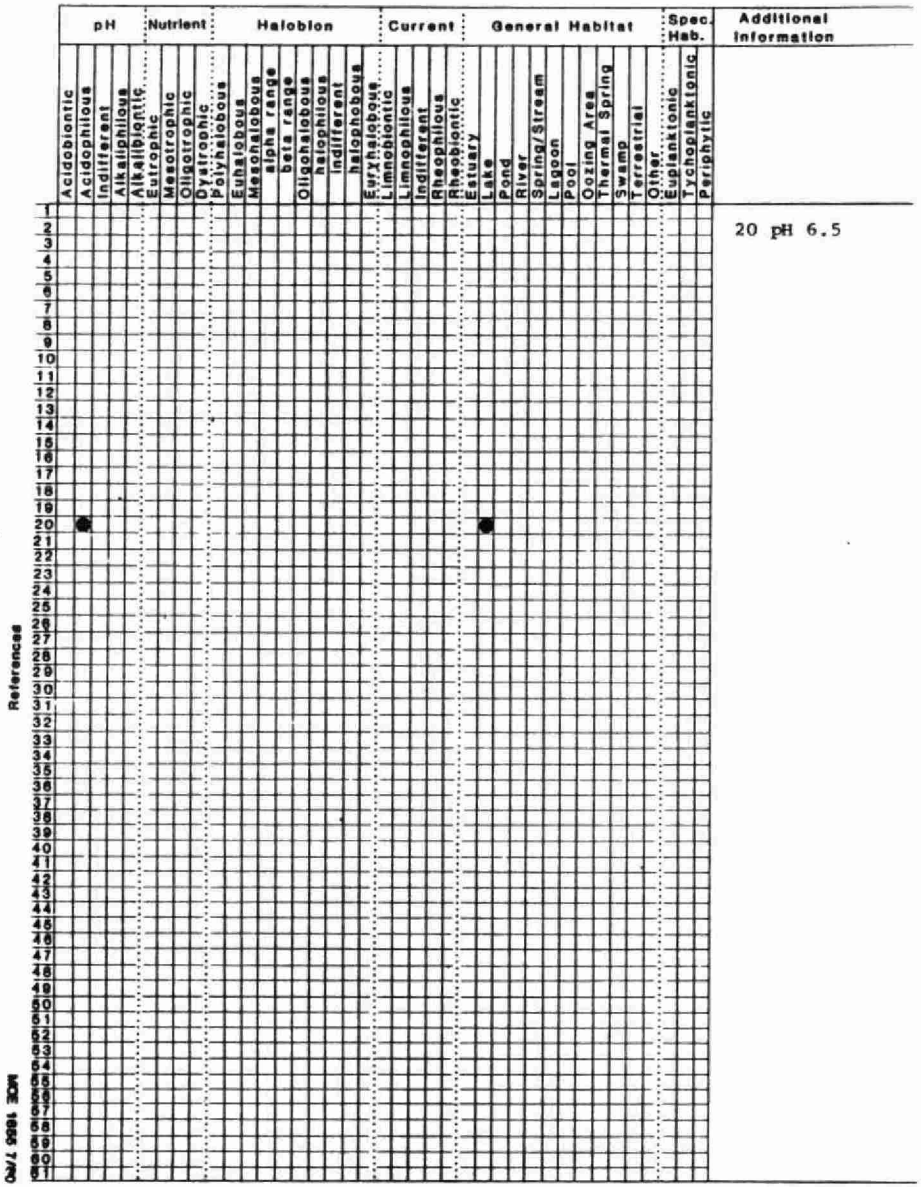


48 found in water low in mineral content fairly rich in humates

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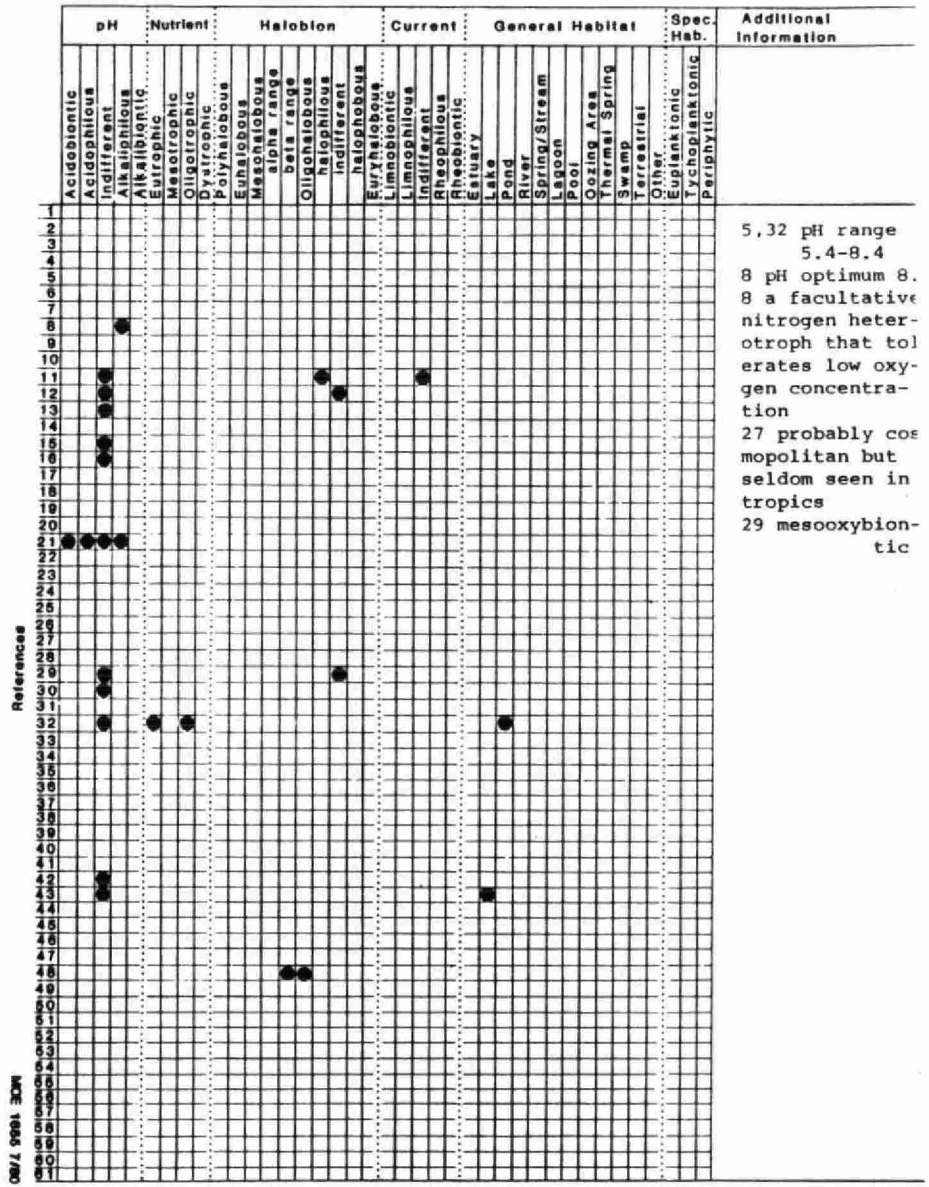
Taxon Navicula seminulum var. intermedia Hust.

Synonym



Taxon Navicula seminulum Grun. var. seminulum

Synonym



Ministry of the Environment
Ontario

Taxon Navicula similis Krasske

Synonym

pH					Nutrient			Halobion							Current				General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1668 7/80

Ministry of the Environment
Ontario

Taxon Navicula simplex Krasske

Synonym

pH					Nutrient			Halobion							Current				General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH 8.5-8.9
		●																							●													

References

MOE 1668 7/80

Ministry of the Environment
Ontario

Taxon Navicula sohrensis Krasske

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Halobion: Eryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
19				●																																				
20	●																								●															

19 pH 8.5-8.9
20 pH 4.8
19 aerophilous

MCE 1986 7/80

Ministry of the Environment
Ontario

Taxon Navicula sohrensis f. capitata Krasske

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Halobion: Eryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	General Habitat: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
19				●																																				

19 pH 7.5-7.9

MCE 1986 7/80

Ministry of the Environment
Ontario

Taxon Navicula sohrensis f. muscicola (Peter.) Krasske

Synonym

	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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References

MOE 1886 7/80

Ministry of the Environment
Ontario

Taxon Navicula stephanssoni Foged

Synonym

	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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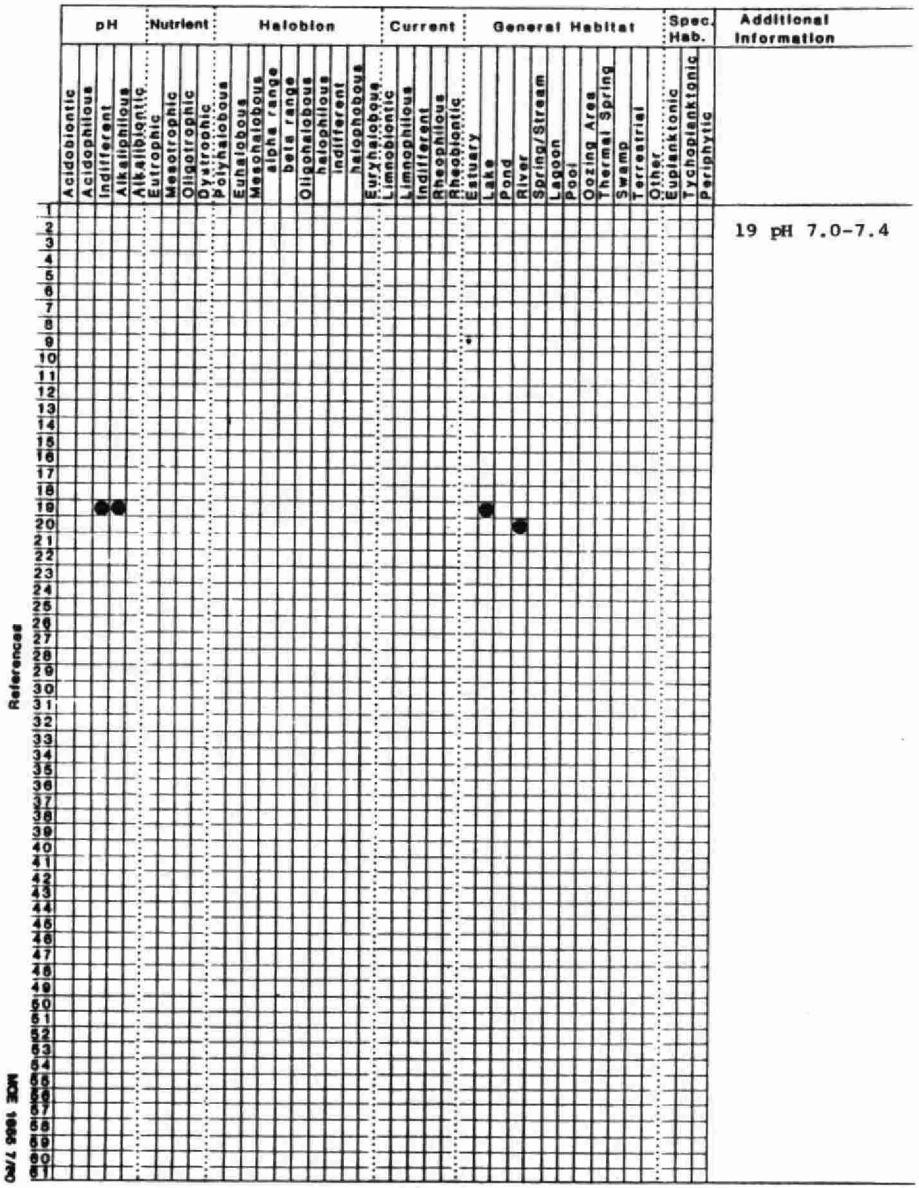
References

MOE 1886 7/80

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Ontario

Taxon Navicula subatomoides Hust.

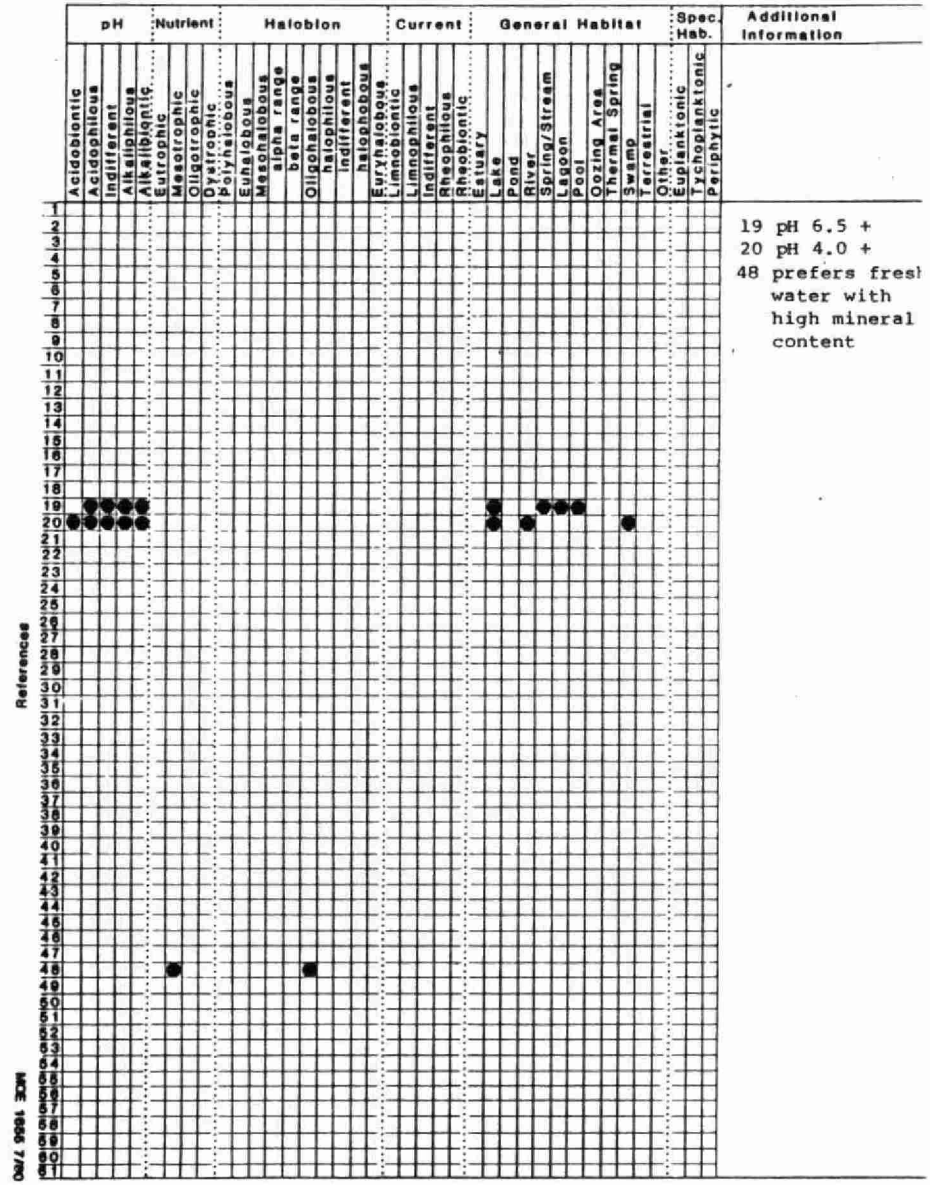
Synonym



Ministry of the Environment
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Taxon Navicula subhamulata Grun. var. subhamulata

Synonym



Ministry of the Environment
Ontario

Taxon Navicula subcostulata Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
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19 pH 7.0-7.4

MOE 1666 7/80

Ministry of the Environment
Ontario

Taxon Navicula subhamulata var. undulata Hust.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat								Spec. Hab.			Additional information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
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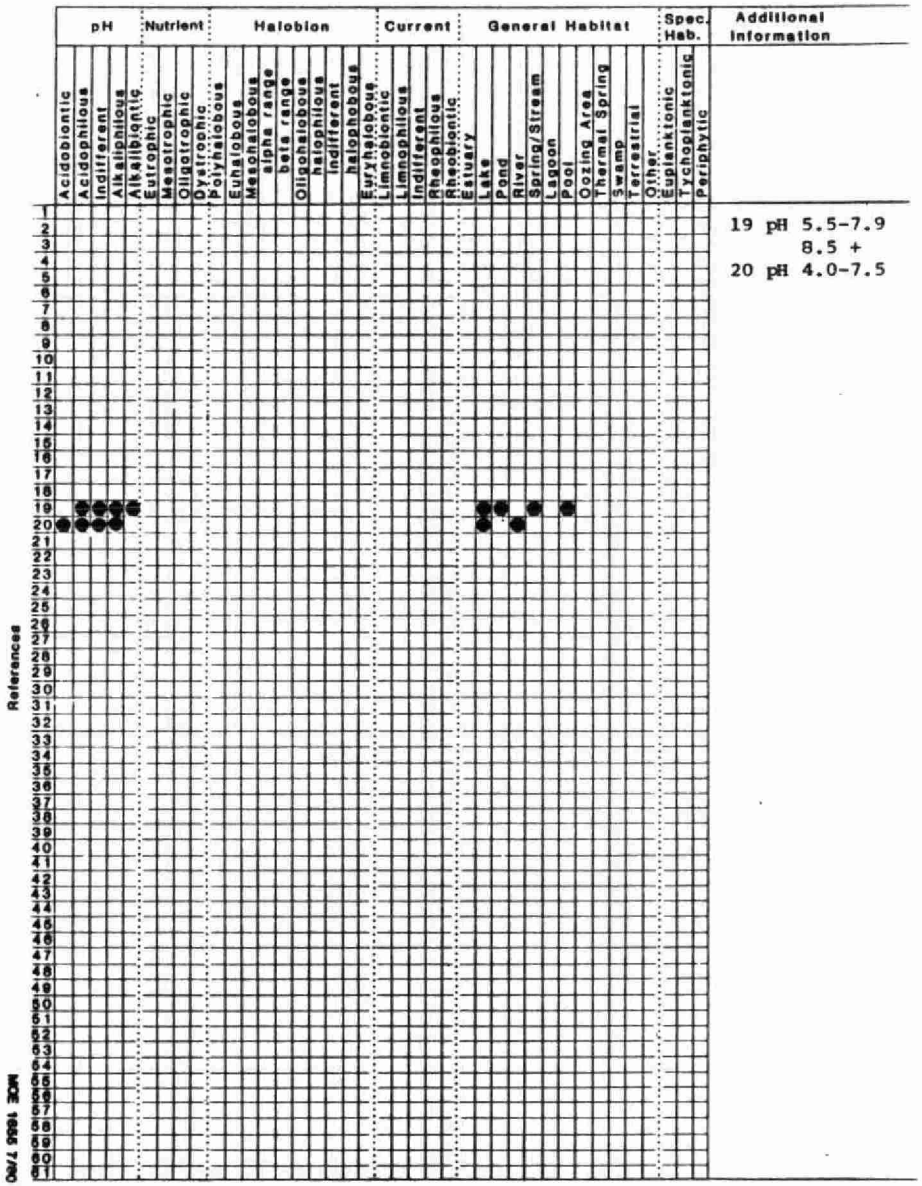
20 pH 8.3

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Ministry of the Environment
Ontario

Taxon Navicula subrotundata Hust.

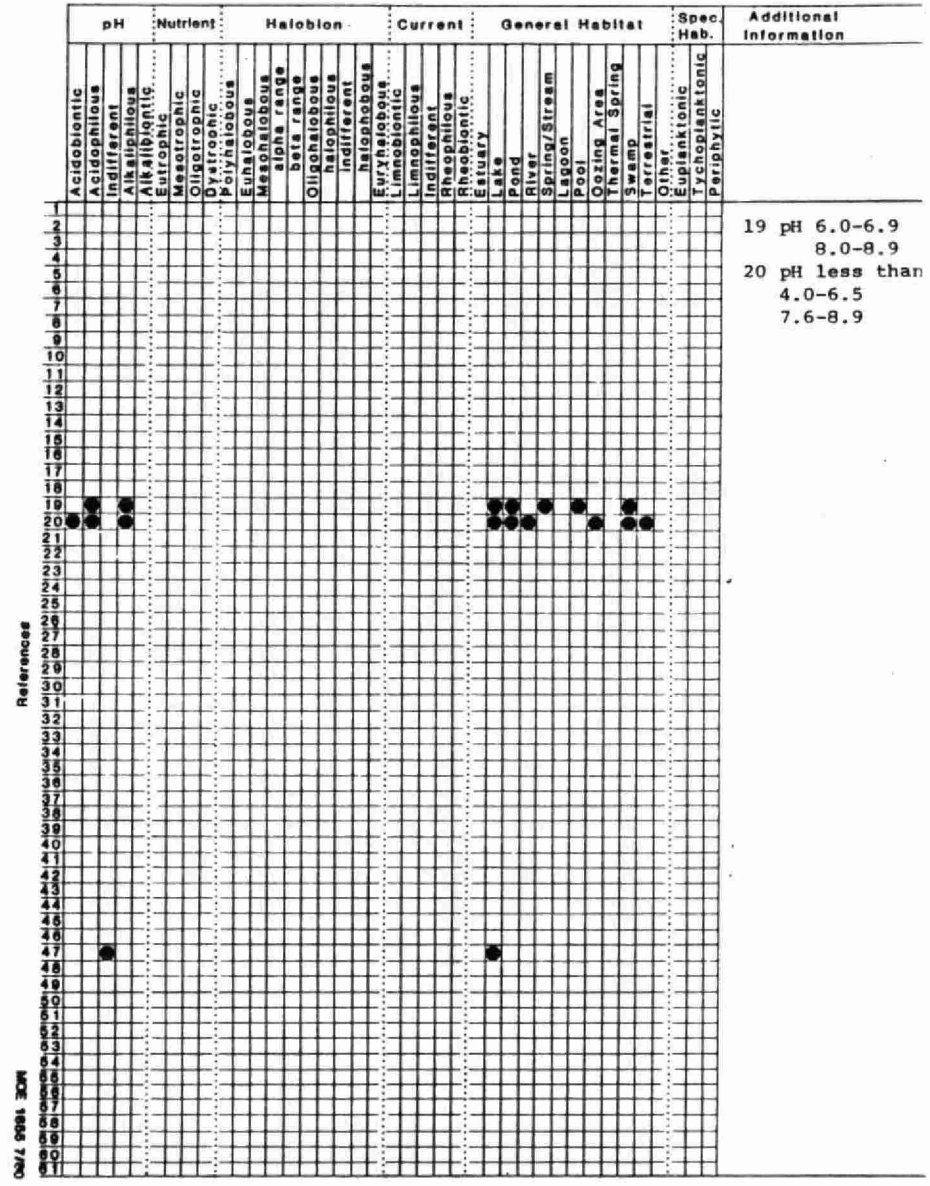
Synonym



Ministry of the Environment
Ontario

Taxon Navicula subtilissima Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Navicula tantula Hust.

Synonym

References	pH: Acidobionic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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OWE 1985 07/20

Ministry of the Environment
Ontario

Taxon Navicula tenelloides Hust.

Synonym

References	pH: Acidobionic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurybalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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19 pH 6.5-7.4
8.0-8.4
48 aerophilous
48 pH 7.5-7.8

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Ministry of the Environment
Ontario

Taxon Navicula tenuicephala Hust.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Eurybiontic	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	Spec. Hab.: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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NOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Navicula thingvallae Østr.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Eurybiontic	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	Spec. Hab.: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tychoplanktonic	Spec. Hab.: Periphytic	Additional Information
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NOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Navicula thoroddseni Foged

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1986 7/80

Ministry of the Environment
Ontario

Taxon Navicula torneensis Cl.

Synonym

References	pH					Nutrient				Halobion							Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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Ministry of the Environment
Ontario

Taxon Navicula trichoptera Foged

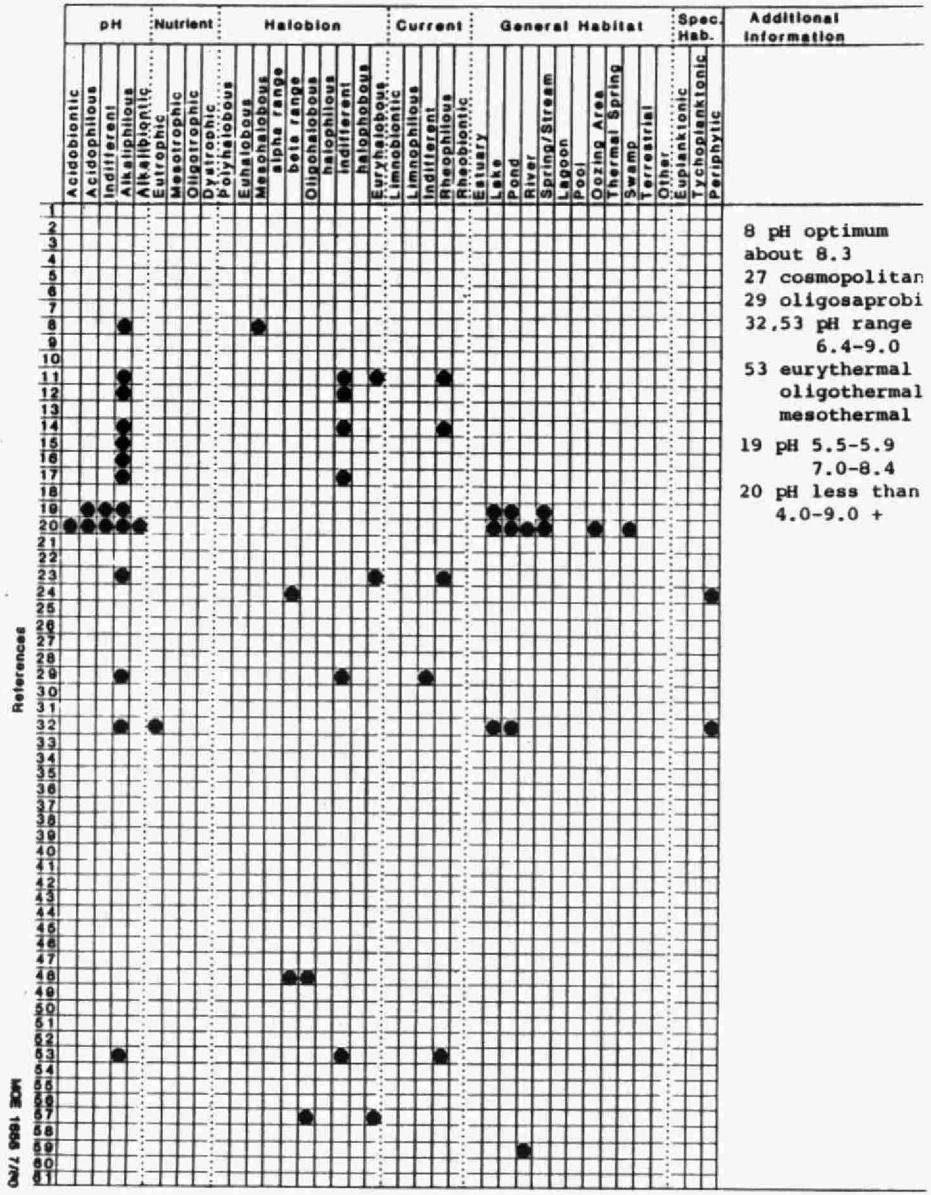
Synonym

pH					Nutrient				Halobion									Current					General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	

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Taxon Navicula tripunctata (O. Mull.) Bory var. tripunctata

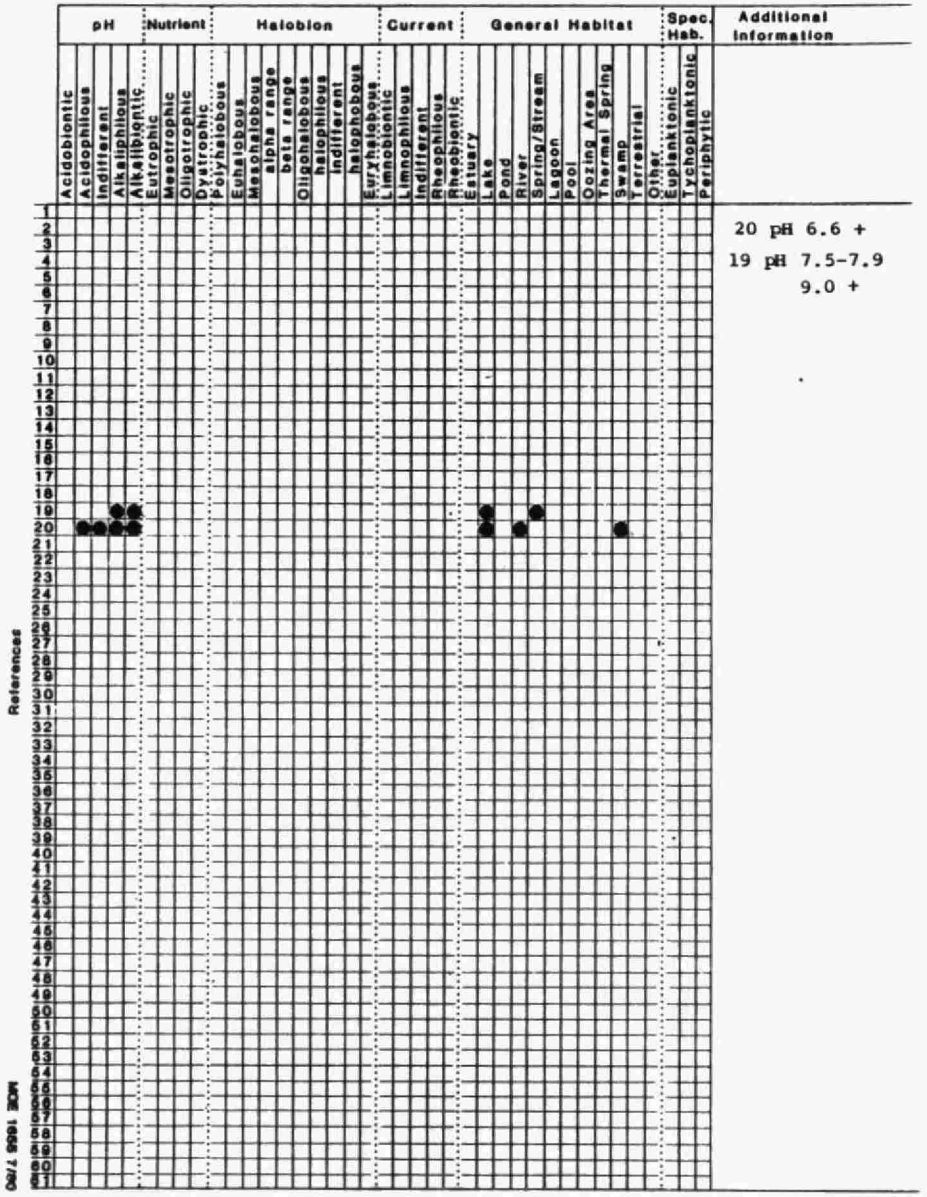
Synonym Navicula gracilis Ehr.



Ministry of the Environment
Ontario

Taxon Navicula tuscula var. capitata Font.

Synonym Navicula tuscula f. angulata Hust. 19

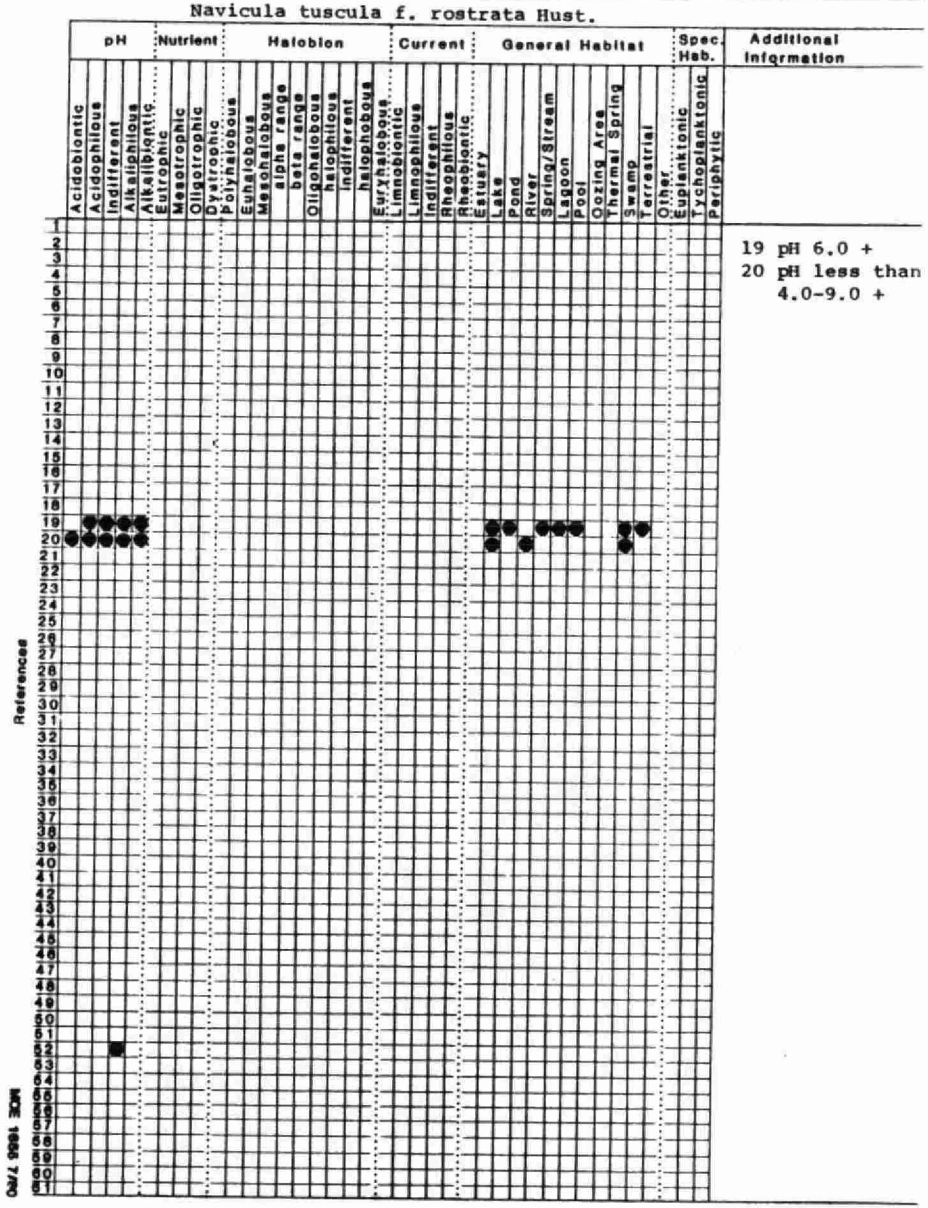


Ministry of the Environment
Ontario

Taxon Navicula tuscula Ehr. var. tuscula

Synonym Navicula punctata Kutz.

Navicula tuscula f. rostrata Hust.

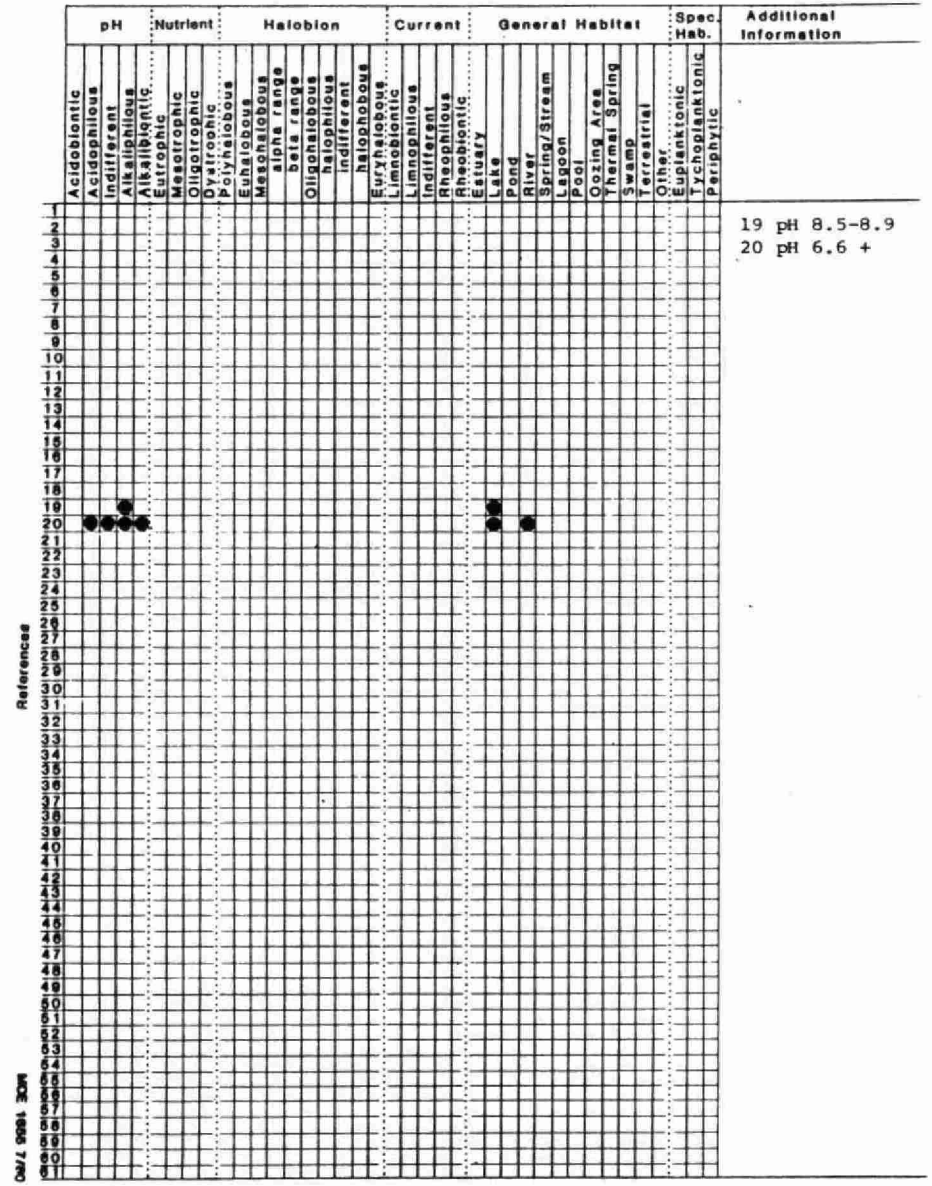


19 pH 6.0 +
20 pH less than 4.0-9.0 +

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Ontario

Taxon Navicula tuscula f. minor Hust.

Synonym

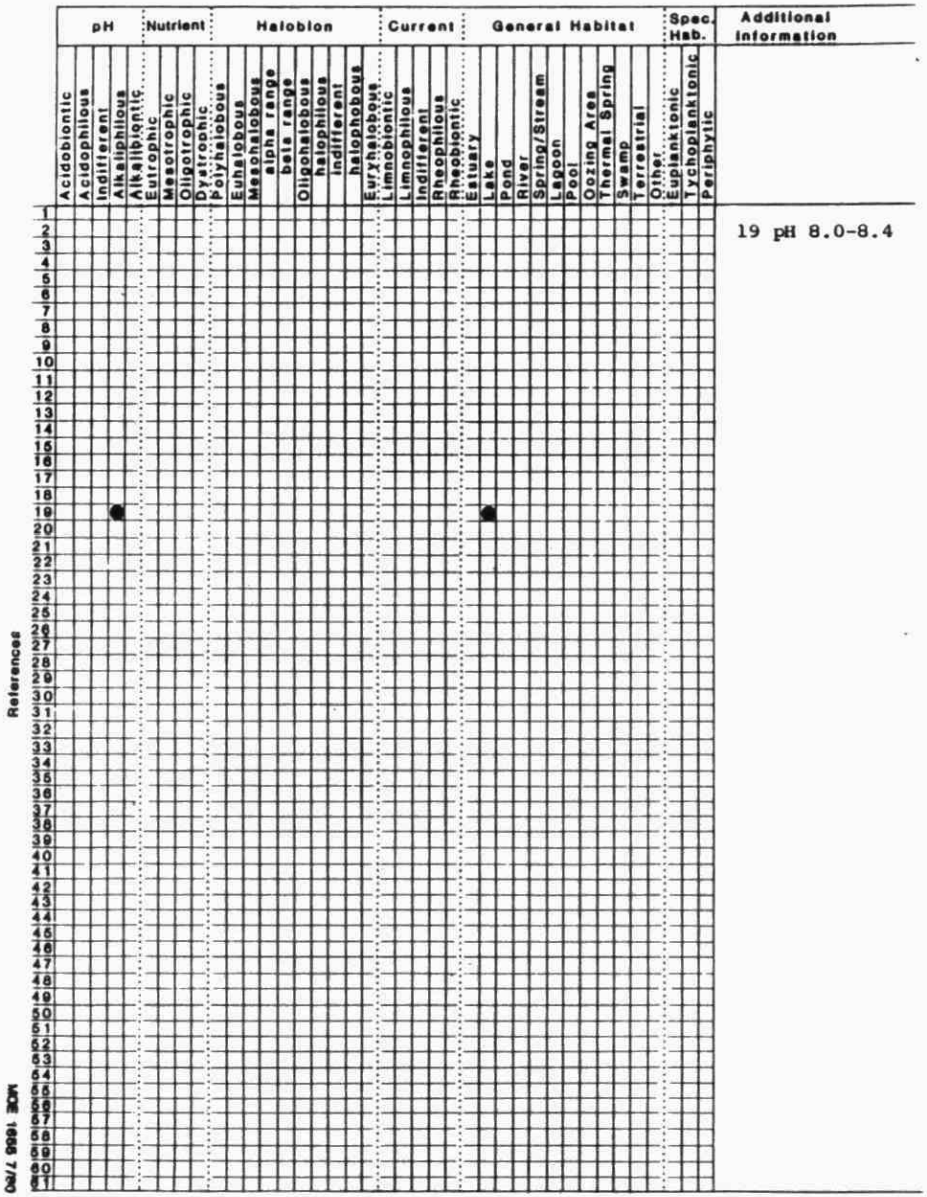


19 pH 8.5-8.9
20 pH 6.6 +

Ministry of the Environment
Ontario

Taxon Navicula utermohlii Hust.

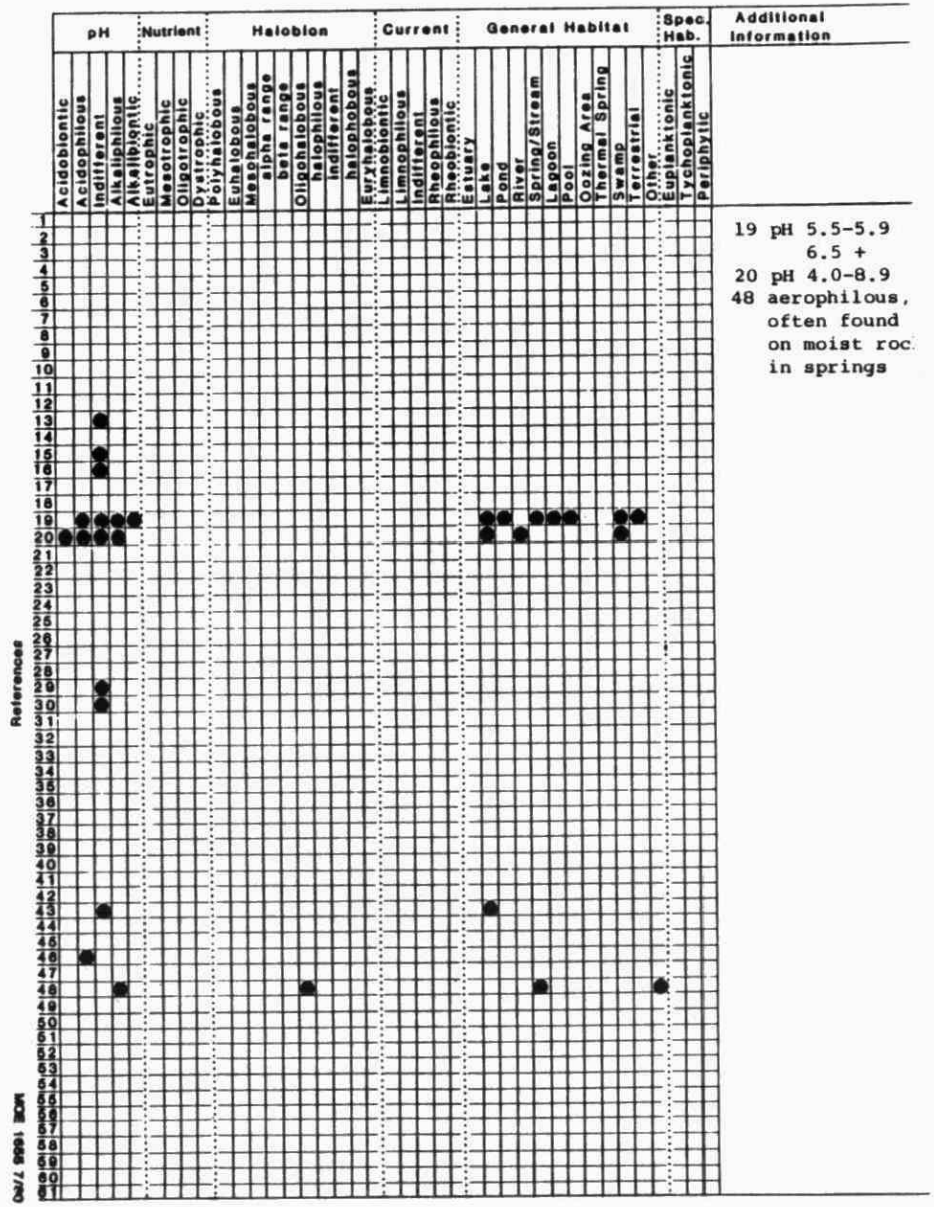
Synonym



Ministry of the Environment
Ontario

Taxon Navicula vanheurckii Patr.

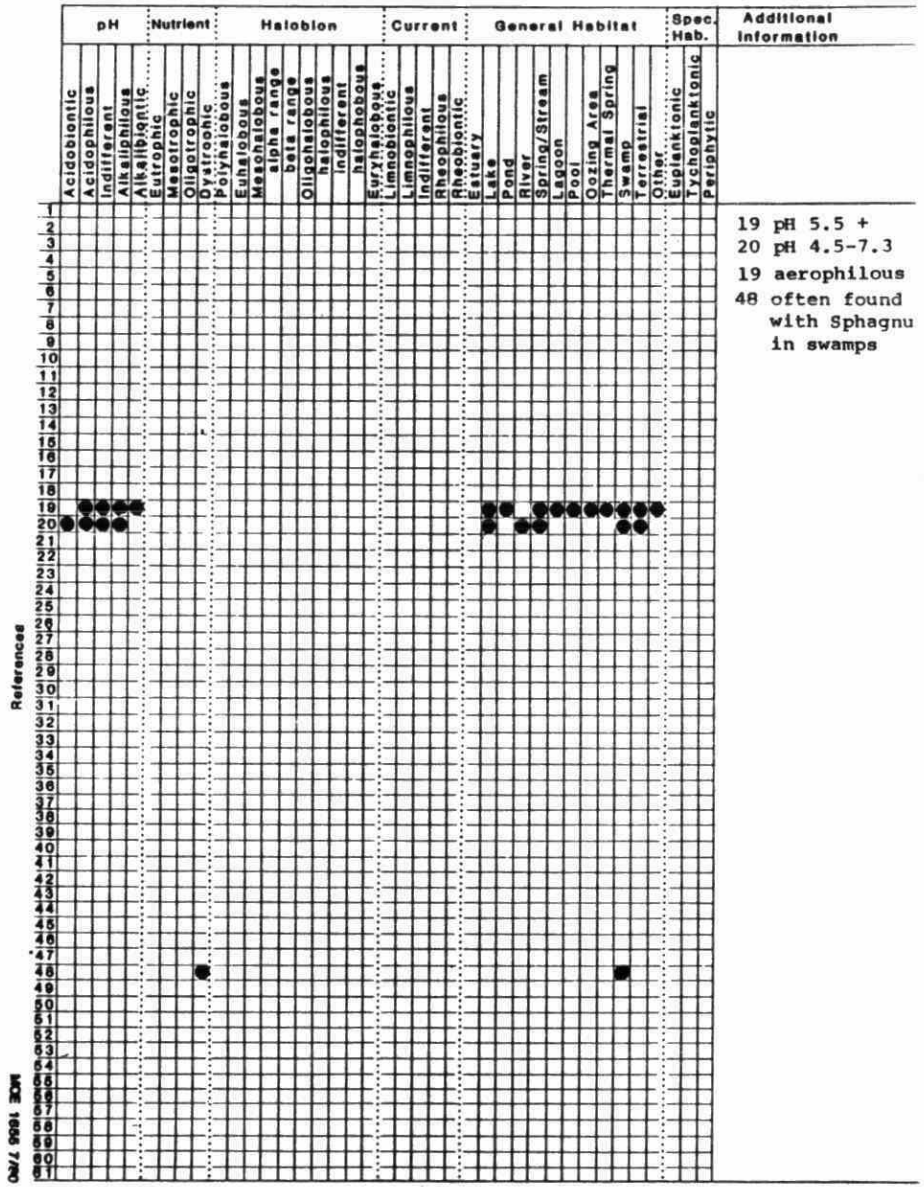
Synonym (= Navicula rotaeana (Rabh.) Grun.) ?? 19,20



Ministry of the Environment
Ontario

Taxon Navicula variostriata Krasske

Synonym

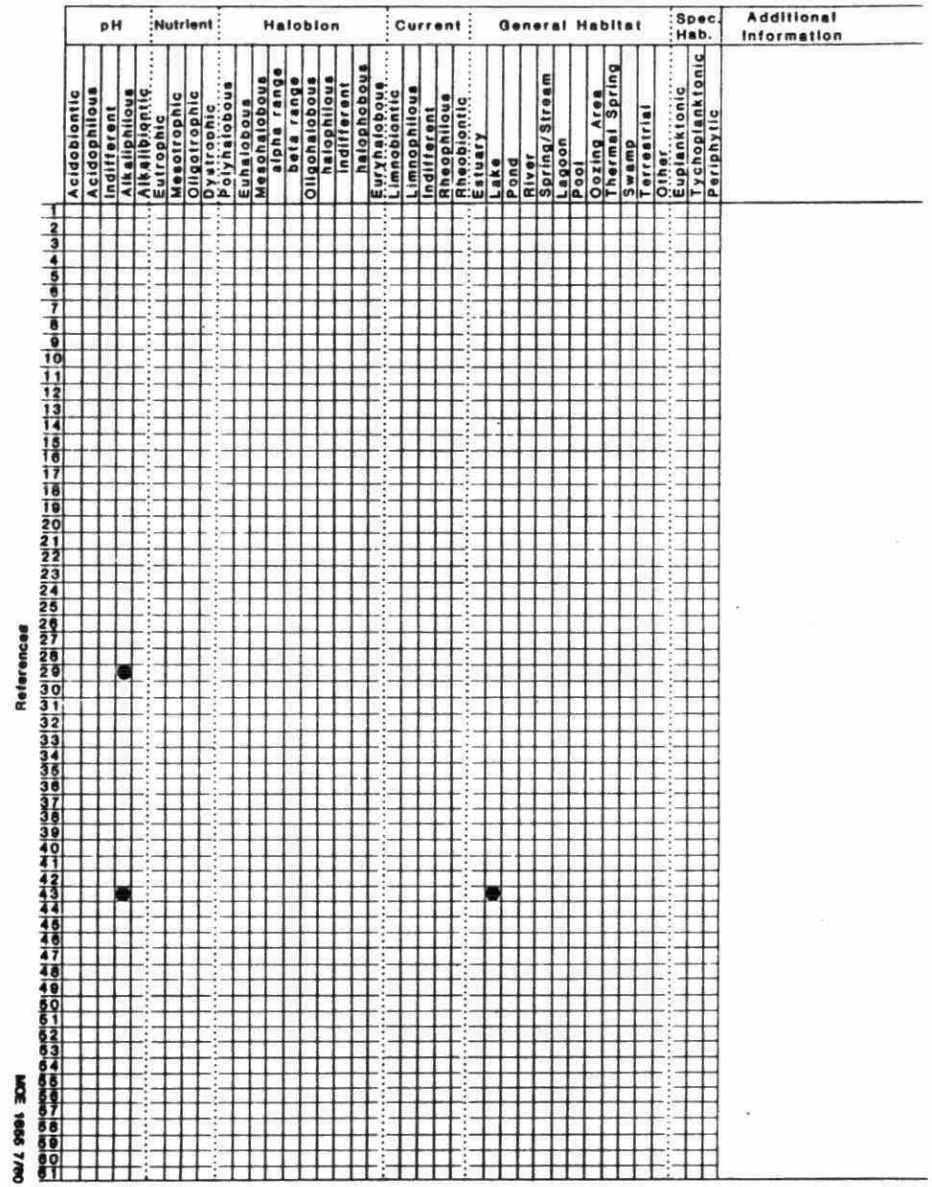


19 pH 5.5 +
20 pH 4.5-7.3
19 aerophilous
48 often found with Sphagnu in swamps

Ministry of the Environment
Ontario

Taxon Navicula ventosa Hust.

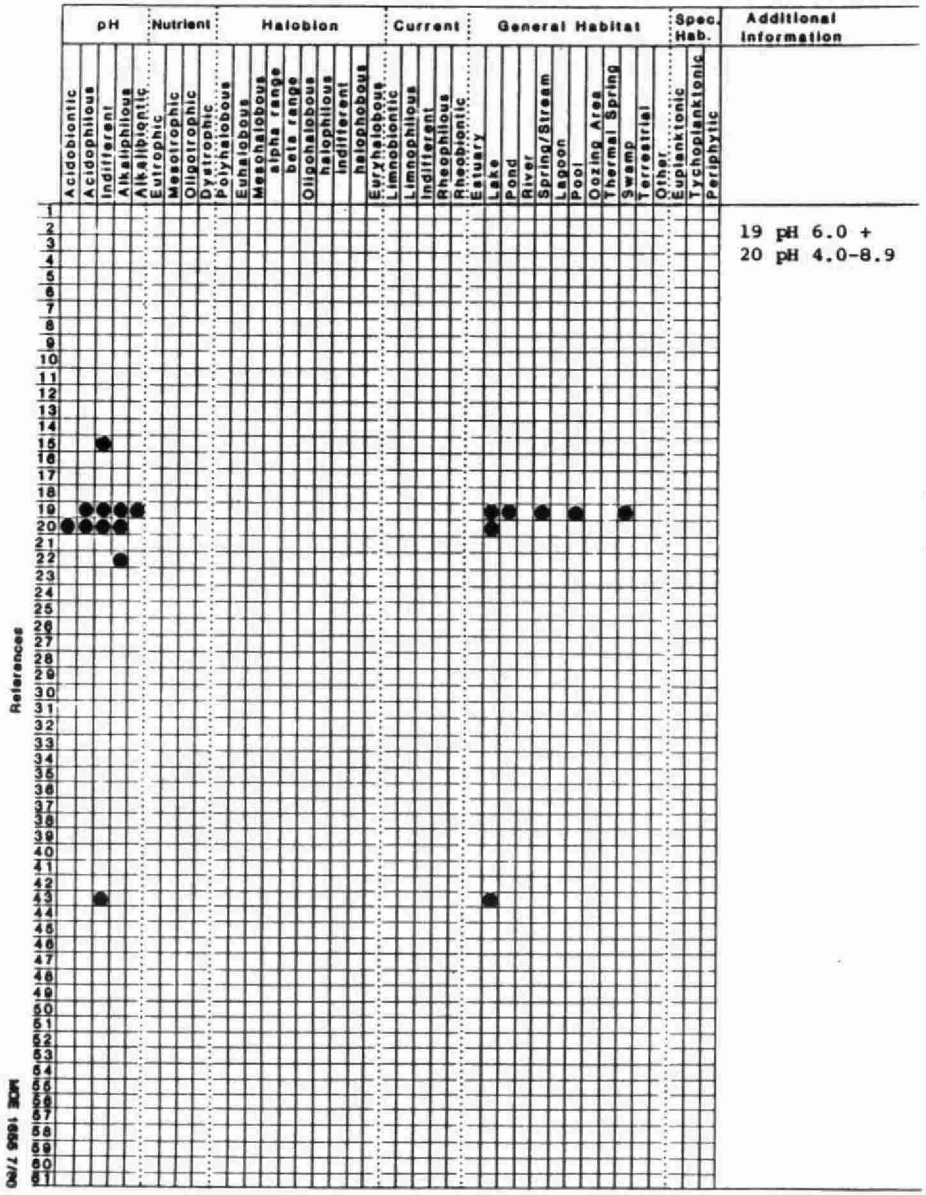
Synonym



Ministry of the Environment
Ontario

Taxon Navicula ventralis Krasske

Synonym

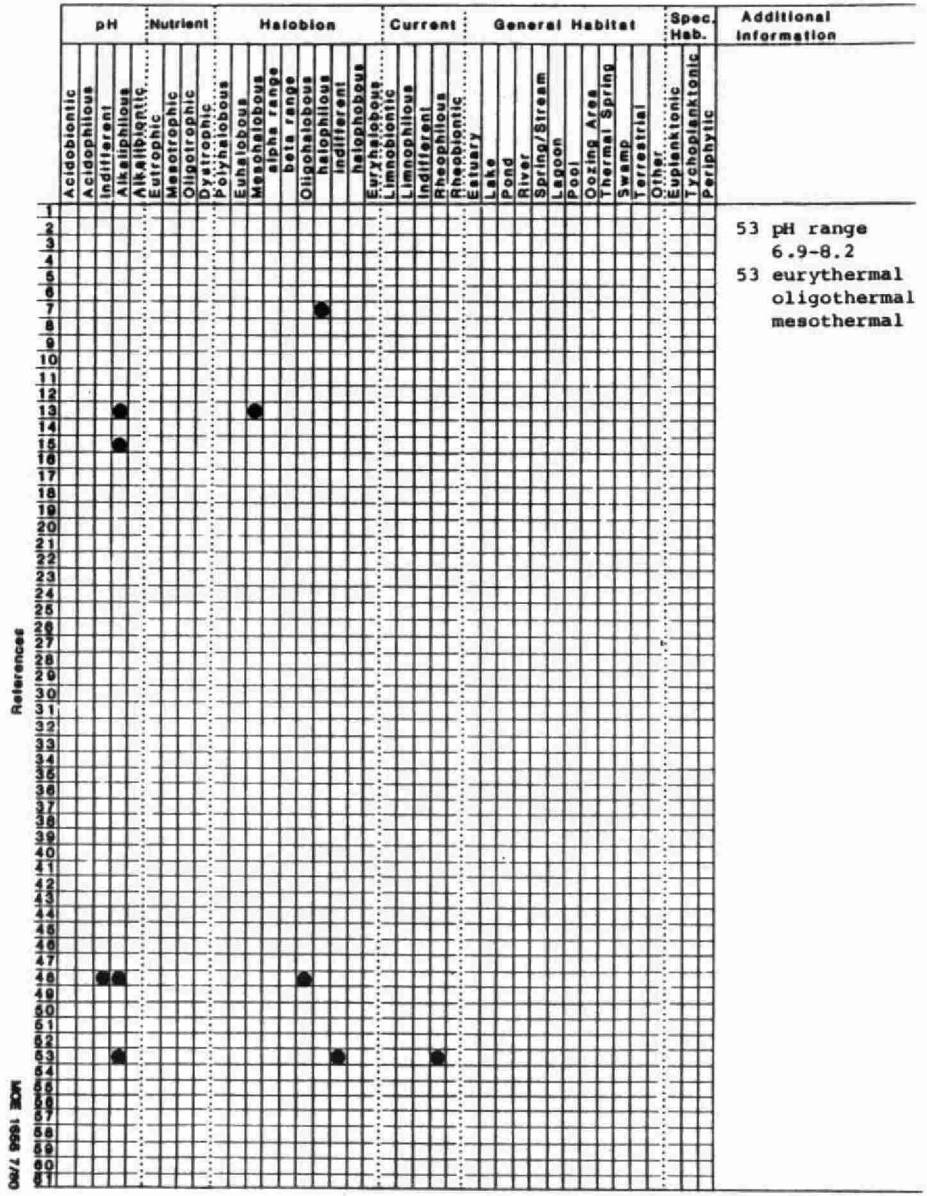


19 pH 6.0 +
20 pH 4.0-8.9

Ministry of the Environment
Ontario

Taxon Navicula viridula var. avenacea (Breb.ex Grun.) V. Heurck

Synonym



53 pH range
6.9-8.2
53 eurythermal
oligothermal
mesothermal

Ministry of the Environment
Ontario

Taxon Navicula viridula var. linearis Hust.

Synonym

Ref.	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Current: Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
20				●																					●	●															20 pH 7.8-8.5
48															●																										48 occurs in soft, fresh water

References

MOE 1866 7/80

Ministry of the Environment
Ontario

Taxon Navicula viridula var. rostellata (Kutz?) Cl.

Synonym Navicula rostellata Kutz.

Navicula rhynchocephala var. rostellata (Kutz.)Grun.?

Ref.	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Halobion: Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Current: Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
21				●																																					21 pH 7.1-8.5
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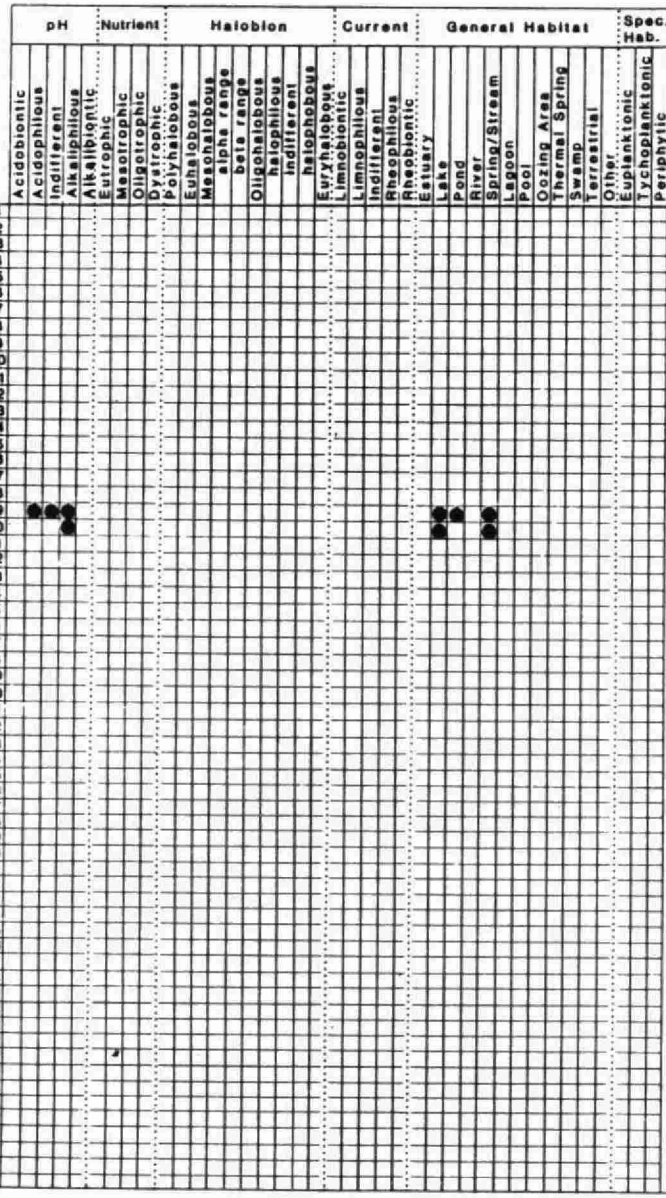
References

MOE 1866 7/80

Ministry of the Environment
Ontario

Taxon Navicula viridula var. slesvicensis (Grun.) Cl.

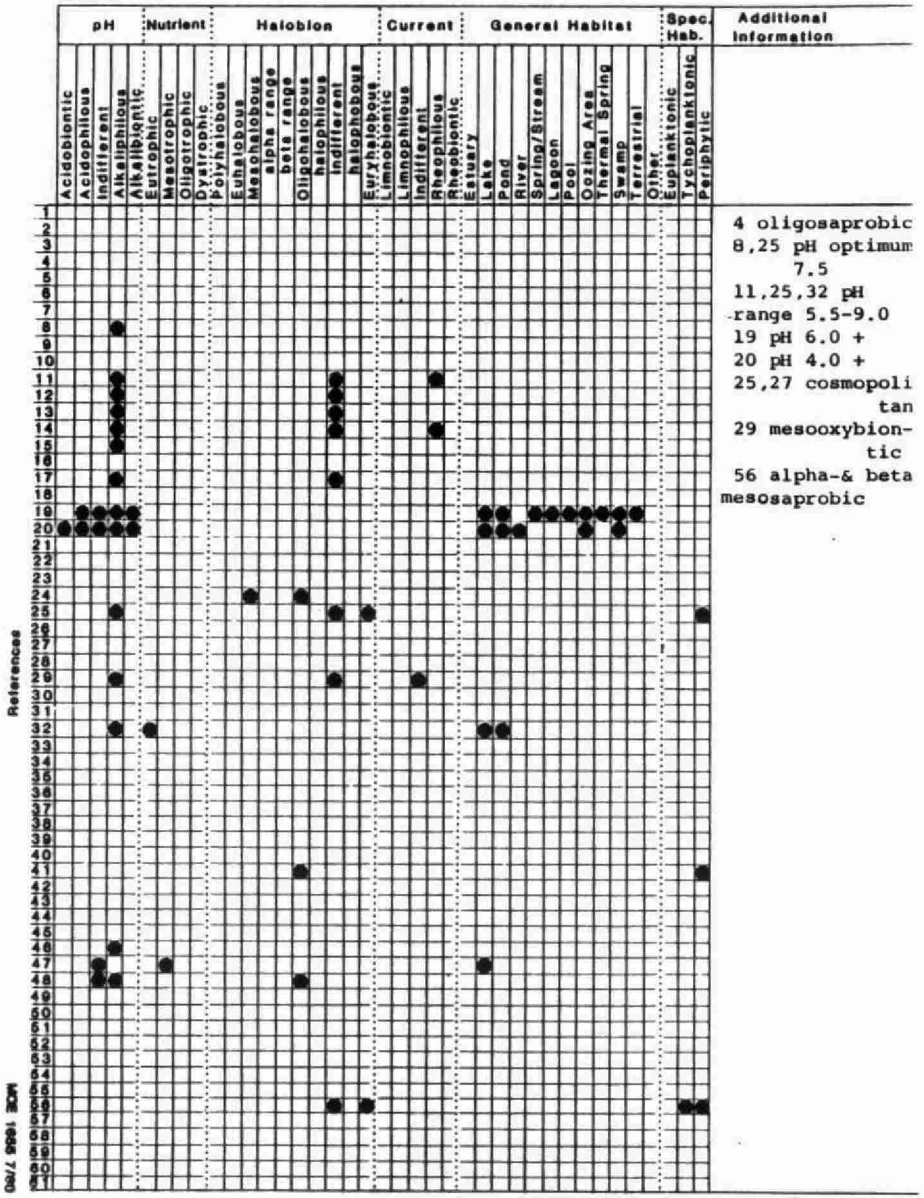
Synonym



Ministry of the Environment
Ontario

Taxon Navicula viridula (Kutz.) Kutz. emend. V. Heurck var. viridul

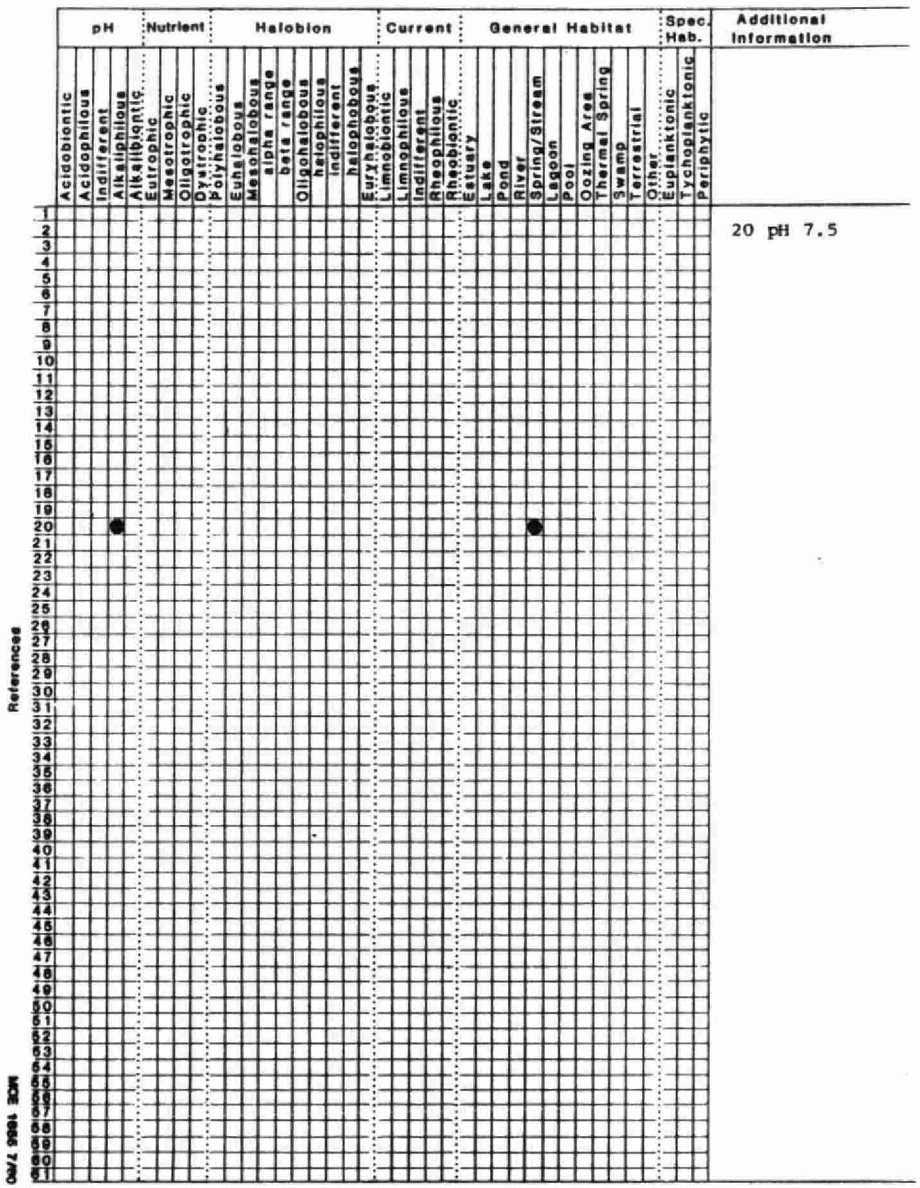
Synonym



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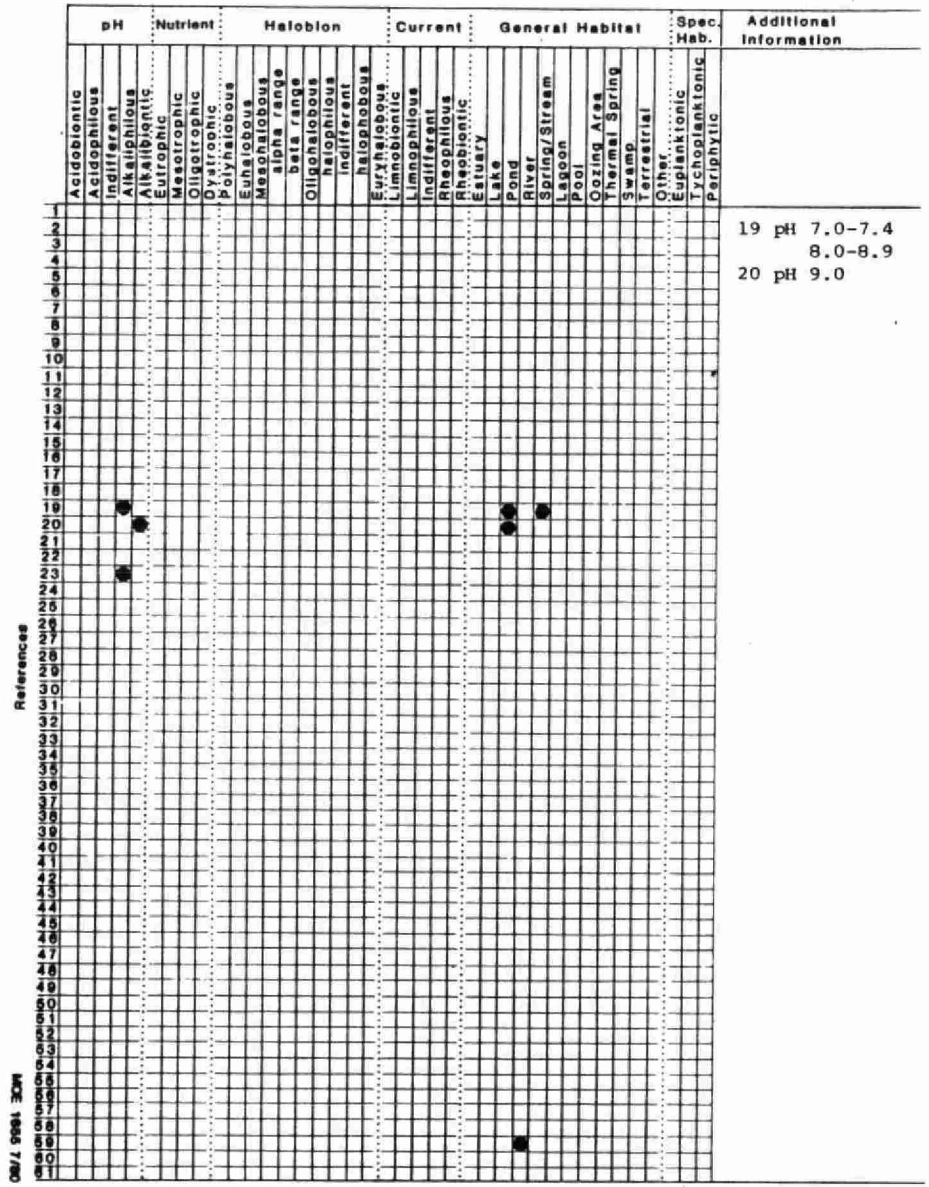
Taxon Navicula viridula f. capitata A. Mayer

Synonym



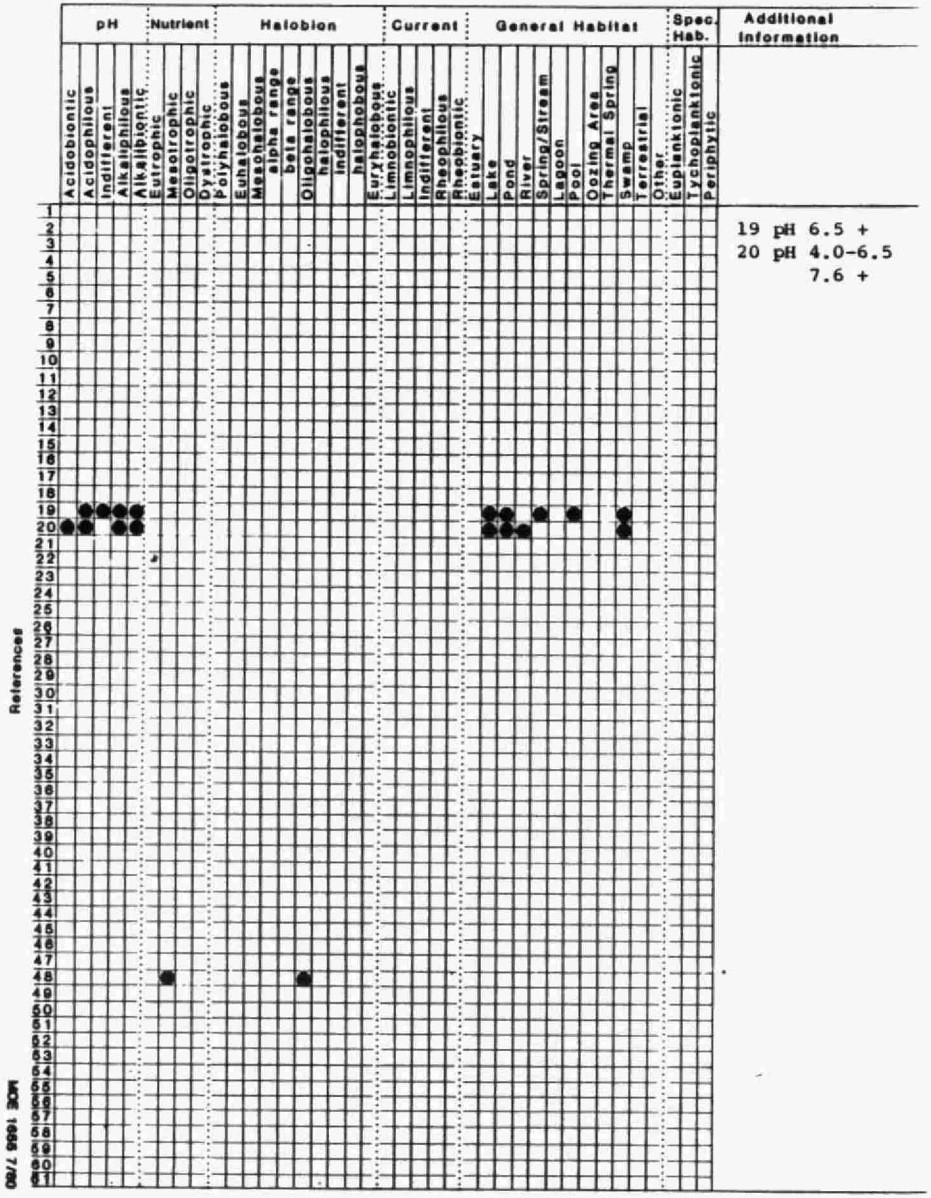
Taxon Navicula vitabunda Hust.

Synonym



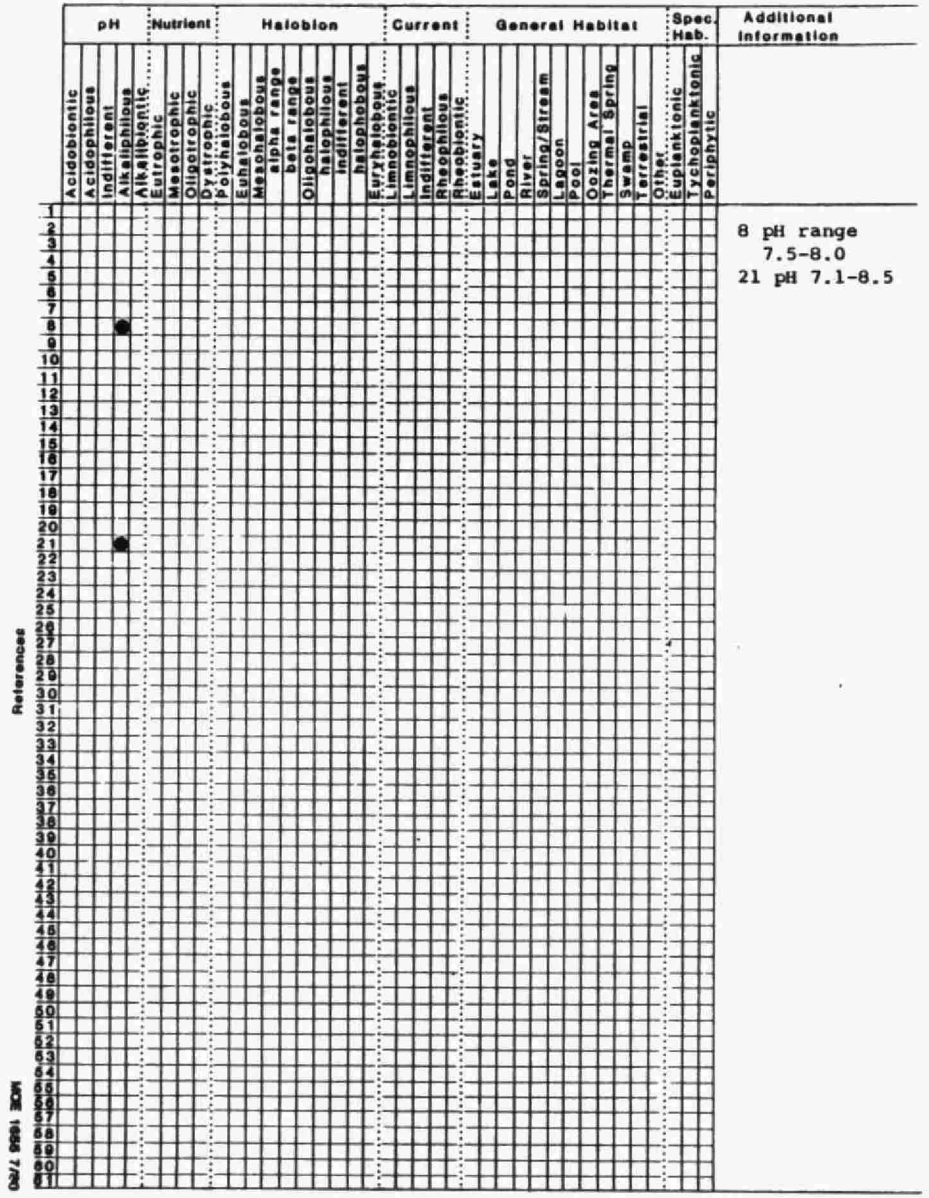
Taxon Naviucla vulpina Kutz.

Synonym



Taxon Navicula zanoni Hust.

Synonym



Ministry of the Environment
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Taxon Neidium sp.

Synonym

References	pH					Nutrient				Halobion								Current				General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1985 7/80

Ministry of the Environment
Ontario

Taxon Neidium affine (Ehr.) Pfitz. var. affine

Synonym Neidium affine var. genuina Cl.

Neidium affine var. genuina f. minor Cl.

References	pH					Nutrient				Halobion								Current				General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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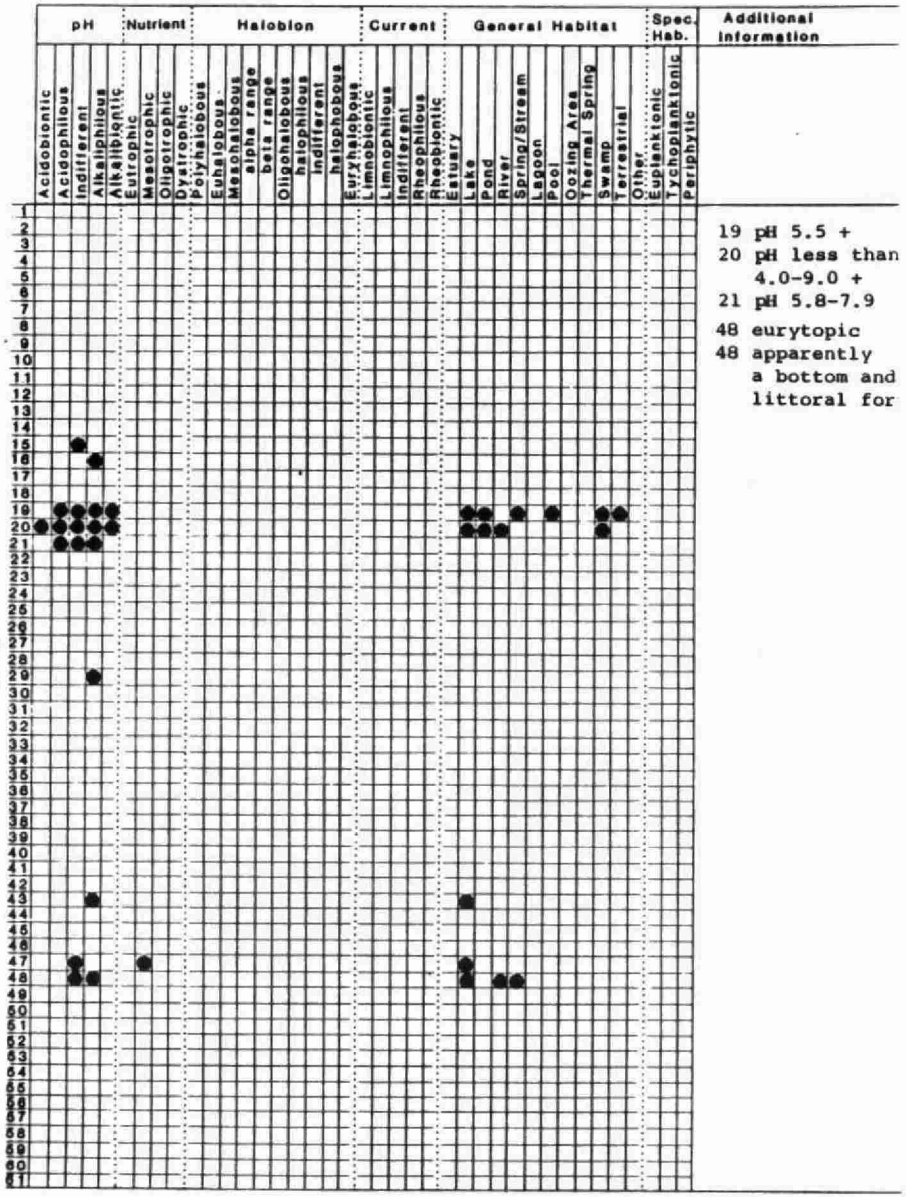
8 pH optimum around 6
11,25 pH range 5.5-8.3
19 pH 5.5-7.4
20 pH 4.0-8.9
25,27 cosmopolitan
19 pH 8.8 +

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Ministry of the Environment
Ontario

Taxon Neidium affine var. amphirhynchus (Ehr.) Cl.

Synonym Neidium iridis var. amphirhynchus (Ehr.) Mayer

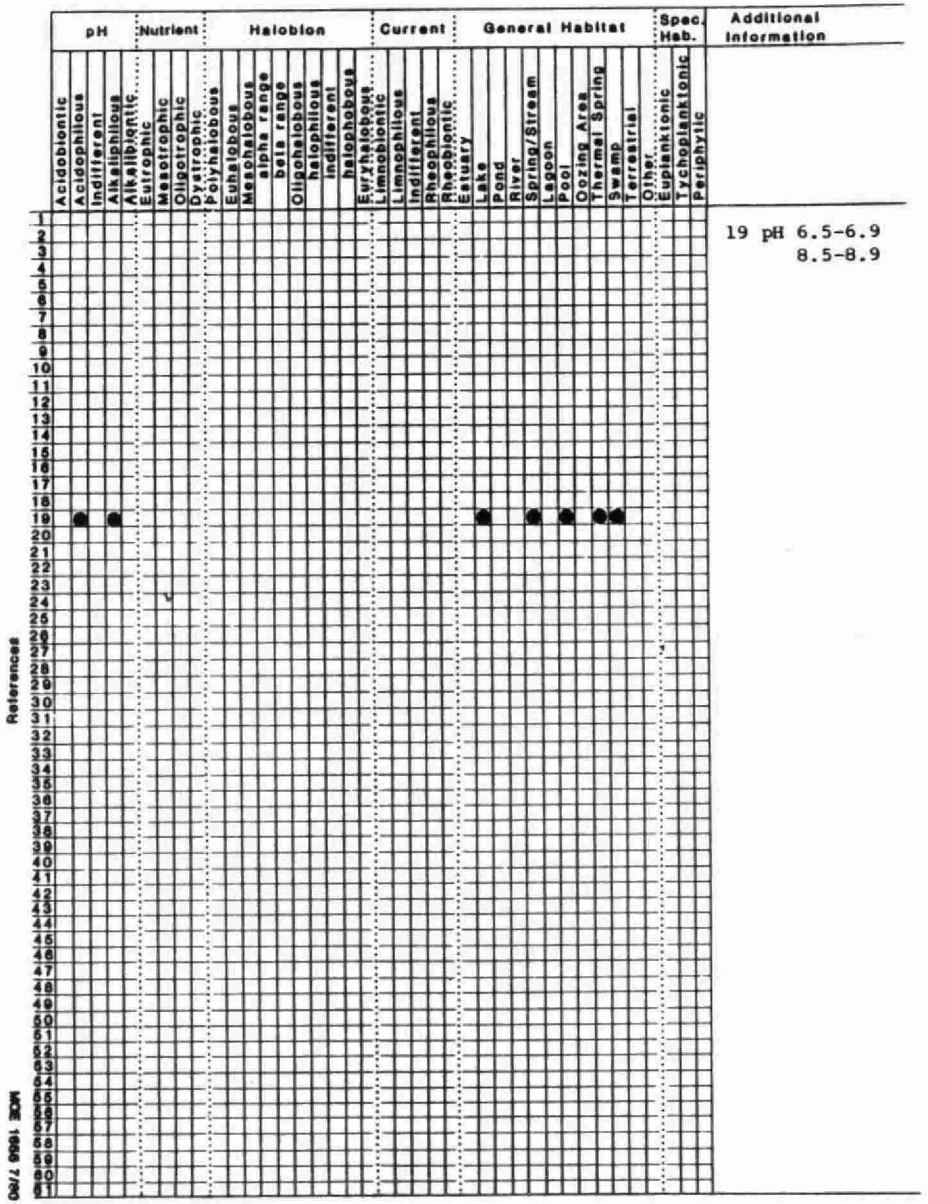


MCE 1986 7/90

Ministry of the Environment
Ontario

Taxon Neidium affine f. hercynica (A. Mayer) Hust.

Synonym



MCE 1986 7/90

Ministry of the Environment
Ontario

Taxon Neidium affine var. amphirhynchus f. incurvum (Greg.,Østr.) Foged

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	Spec. Hab.: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tycholanktonic	Spec. Hab.: Periphytic	Additional Information
19		●																									●	●	●												19 pH 6.5-6.9

Ministry of the Environment
Ontario

Taxon Neidium affine var. amphirhynchus f. undulata Hust.

Synonym

References	pH: Acidobiontic	pH: Acidophilous	pH: Indifferent	pH: Alkaliphilous	pH: Alkalibiontic	Nutrient: Eutrophic	Nutrient: Mesotrophic	Nutrient: Oligotrophic	Nutrient: Dystrophic	Halobion: Polyhalobous	Halobion: Euhalobous	Halobion: Mesohalobous	Halobion: alpha range	Halobion: beta range	Halobion: Oligohalobous	Halobion: halophilous	Halobion: indifferent	Halobion: halophobous	Current: Euryhalobous	Current: Limnobiontic	Current: Limnophilous	Current: Indifferent	Current: Rheophilous	Current: Rheobiontic	General Habitat: Estuary	General Habitat: Lake	General Habitat: Pond	General Habitat: River	General Habitat: Spring/Stream	General Habitat: Lagoon	General Habitat: Pool	General Habitat: Oozing Area	General Habitat: Thermal Spring	General Habitat: Swamp	General Habitat: Terrestrial	Spec. Hab.: Other	Spec. Hab.: Euplanktonic	Spec. Hab.: Tycholanktonic	Spec. Hab.: Periphytic	Additional Information
19			●																							●	●													19 pH 8.0-8.4

Ministry of the Environment
Ontario

Taxon Neidium affine var. capitata Molder

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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20 pH 4.0-6.5
7.6-7.9

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Ministry of the Environment
Ontario

Taxon Neidium affine var. ceylonicum(Skv.) Reim.

Synonym Neidium affine var. ceylonica (Skv.) Reim.

References	pH					Nutrient				Halobion										Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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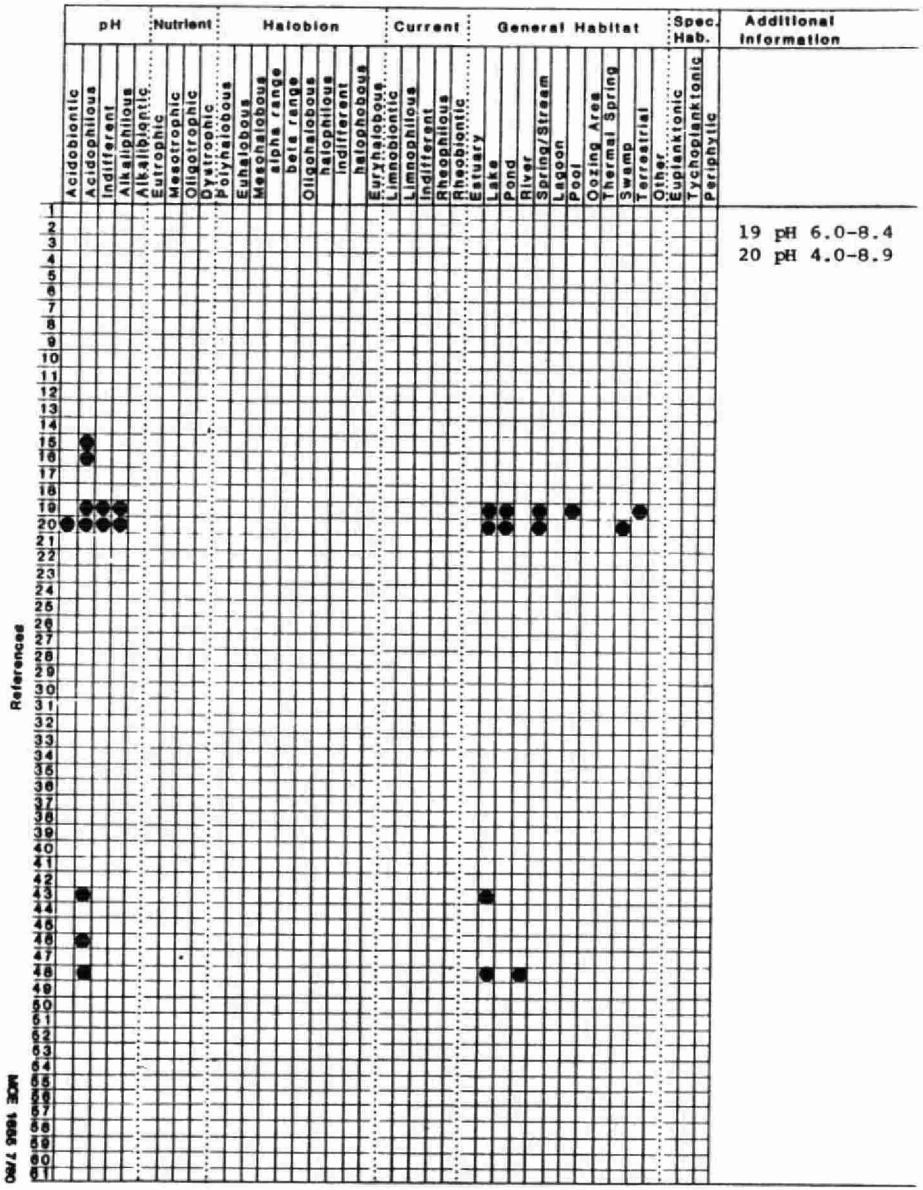
19 pH 7.0-7.4

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Ministry of the Environment
Ontario

Taxon Neidium affine var. longiceps (Greg.) Cl.

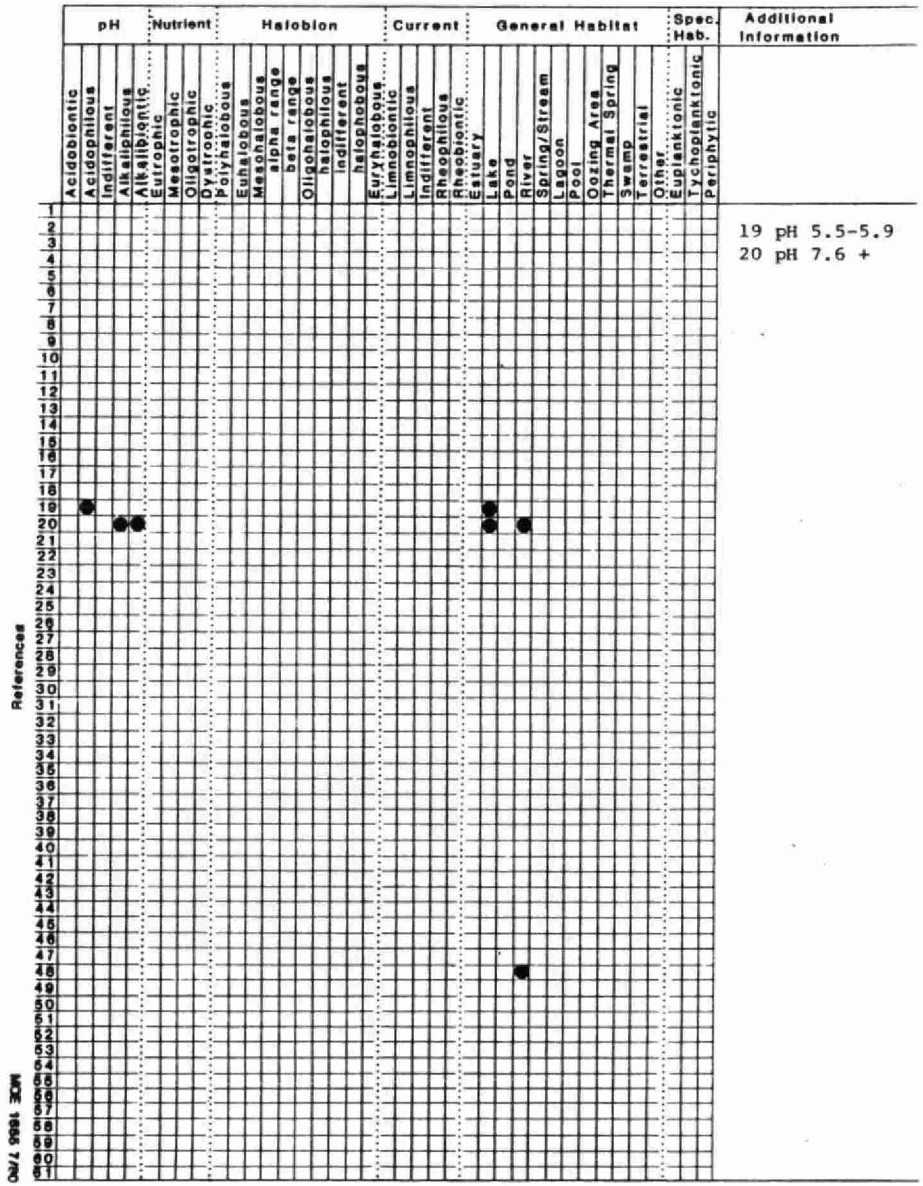
Synonym



Ministry of the Environment
Ontario

Taxon Neidium affine var. humerus Reim.

Synonym



Ministry of the Environment
Ontario

Taxon Neidium alpinum Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	Halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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20	●	●																							●		●												19 pH 6.5-6.9 20 pH 5.3-6.5
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Ministry of the Environment
Ontario

Taxon Neidium apiculatum Reim.

Synonym

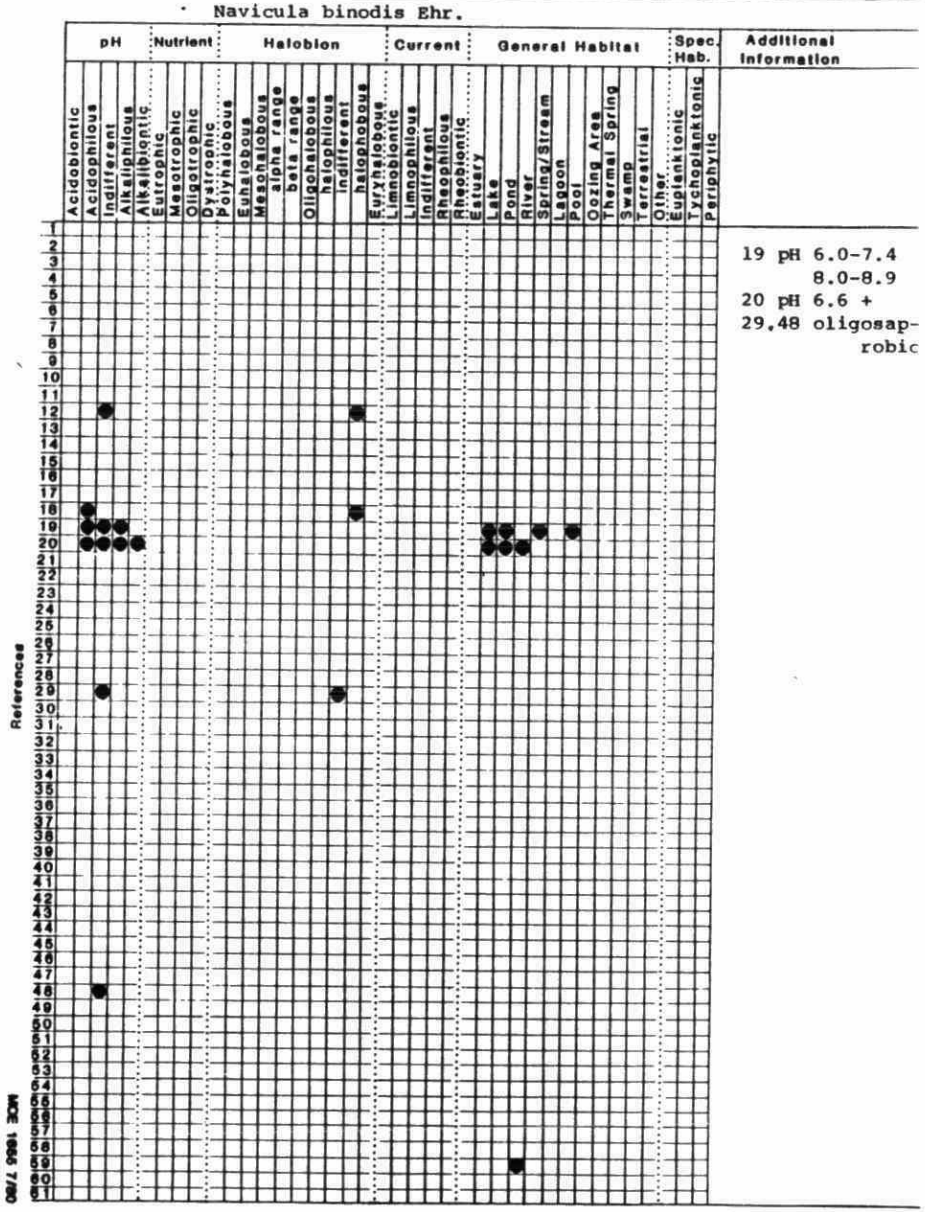
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	Indifferent	Halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
19	●	●	●																						●	●				●										19 pH 6.0-7.4 8.5-8.9
48									●																			●											

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Taxon Neidium binode (Ehr.) Hust.

Synonym Neidium binodis Hust.

Navicula binodis Ehr.

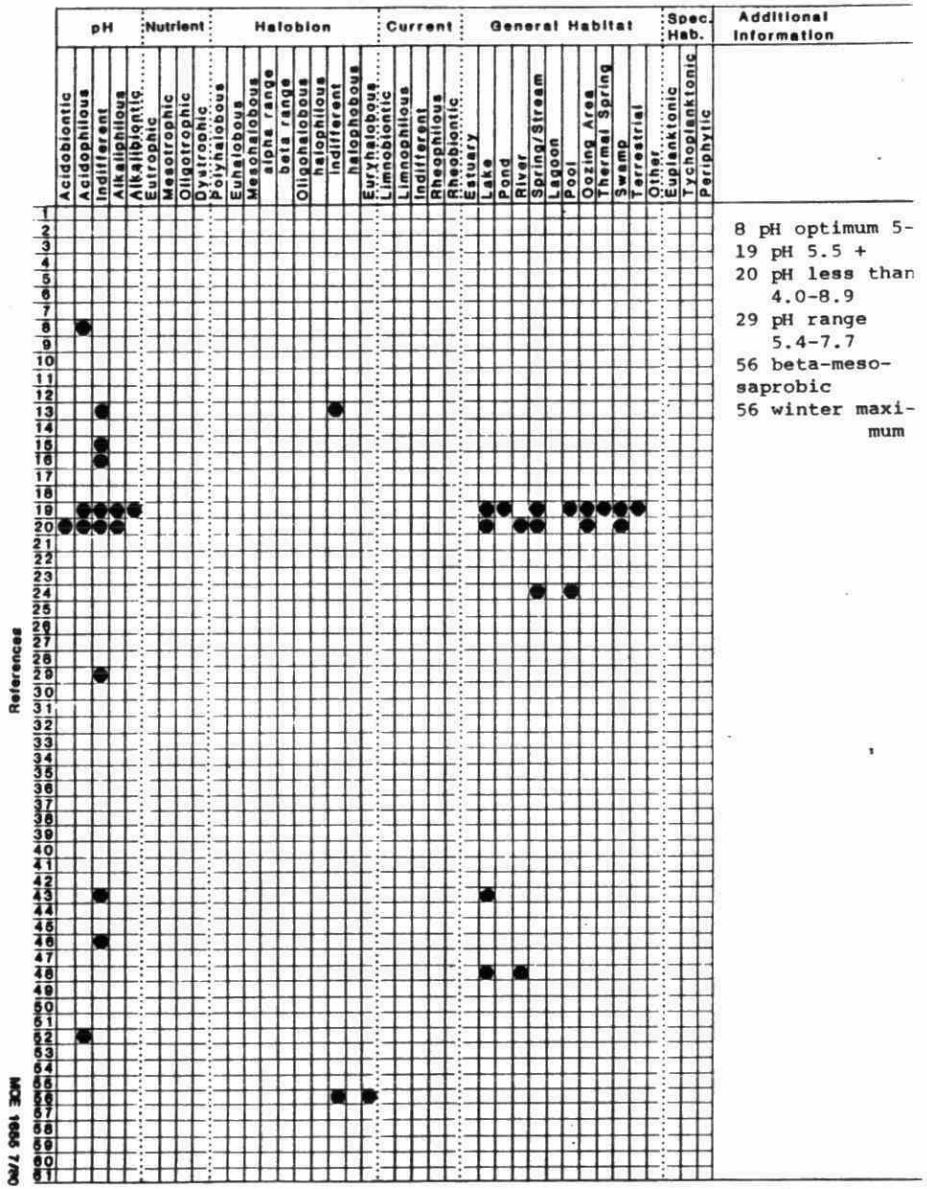


Additional Information

19 pH 6.0-7.4
8.0-8.9
20 pH 6.6 +
29,48 oligosaprobic

Taxon Neidium bisulcatum (Lager.) Cl.

Synonym



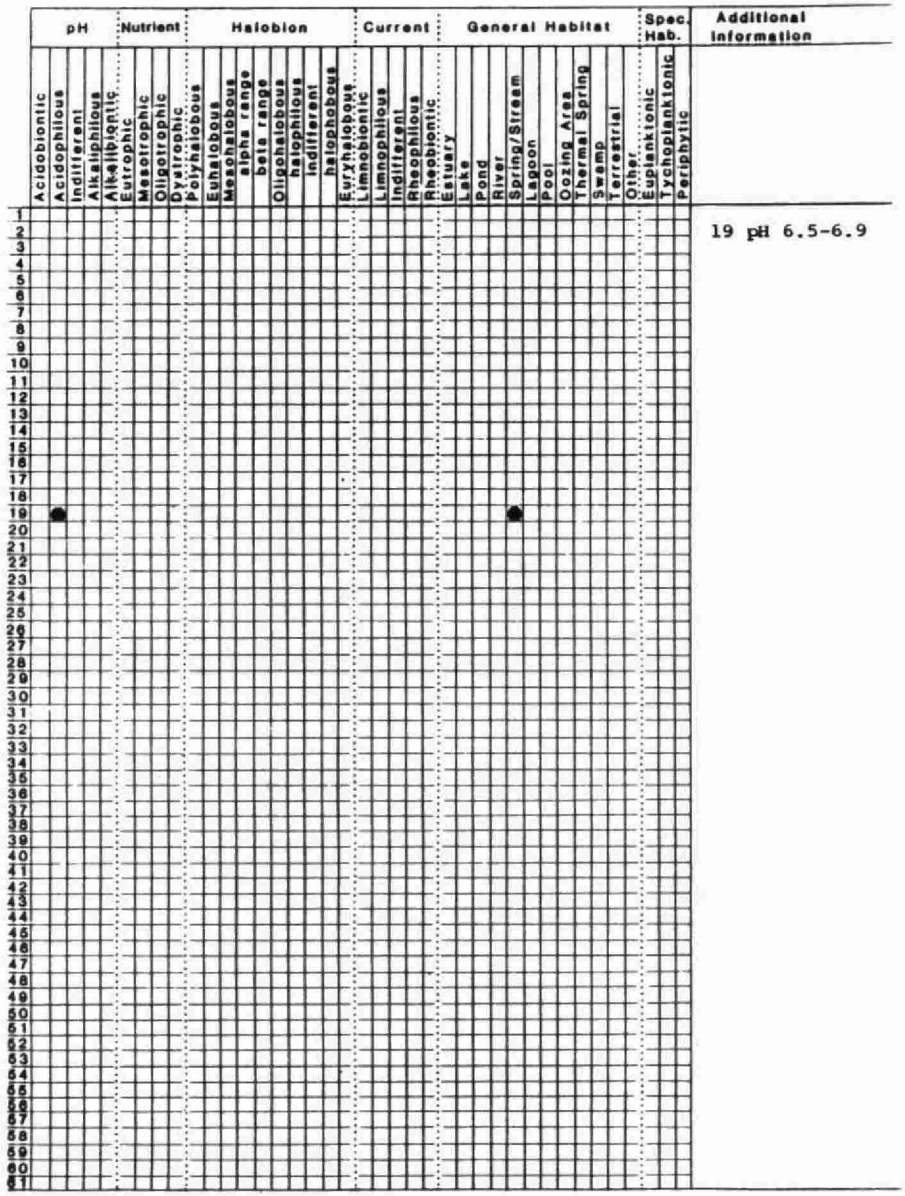
Additional Information

8 pH optimum 5-
19 pH 5.5 +
20 pH less than 4.0-8.9
29 pH range 5.4-7.7
56 beta-mesosaprobic
56 winter maximum

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Taxon Neidium calvum Østr.

Synonym



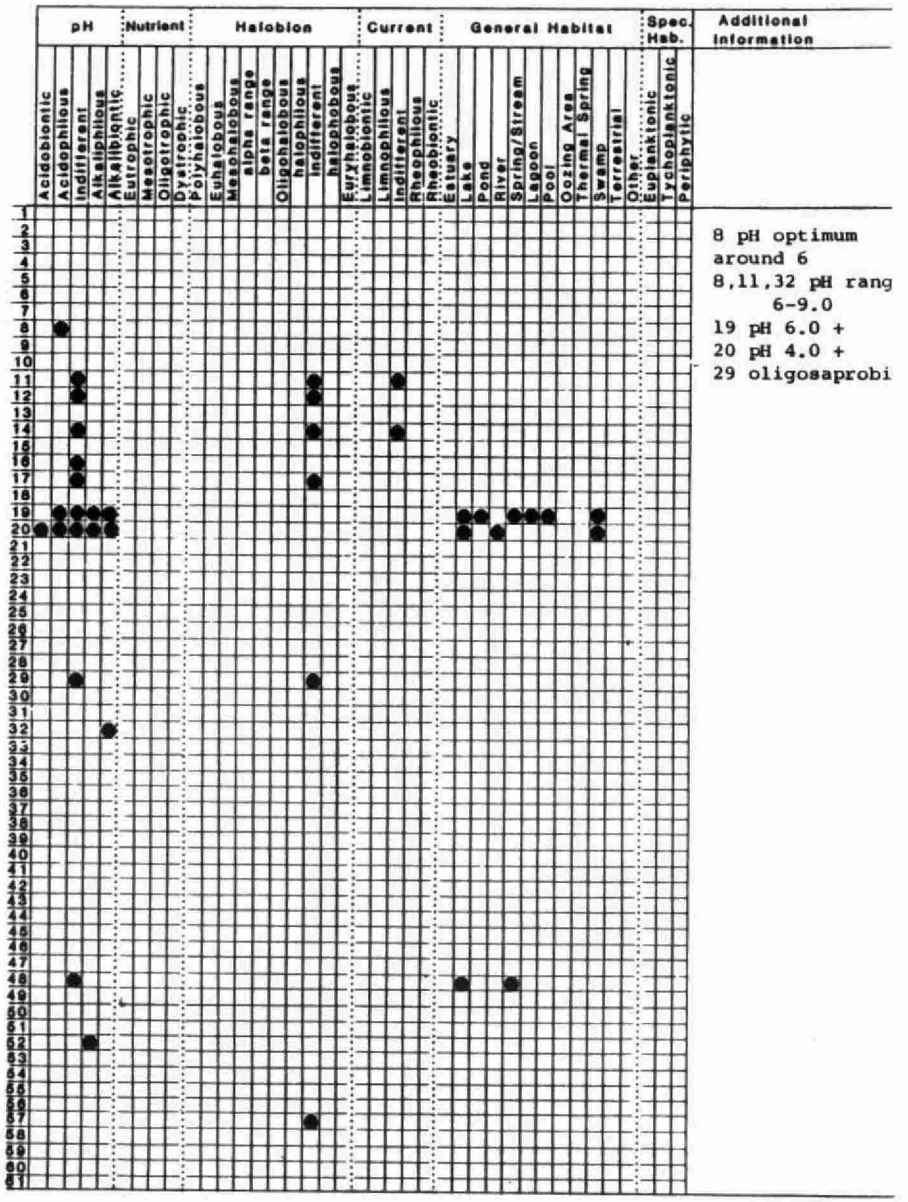
Additional information

19 pH 6.5-6.9

Ministry of the Environment
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Taxon Neidium dubium (Ehr.) Cl.

Synonym



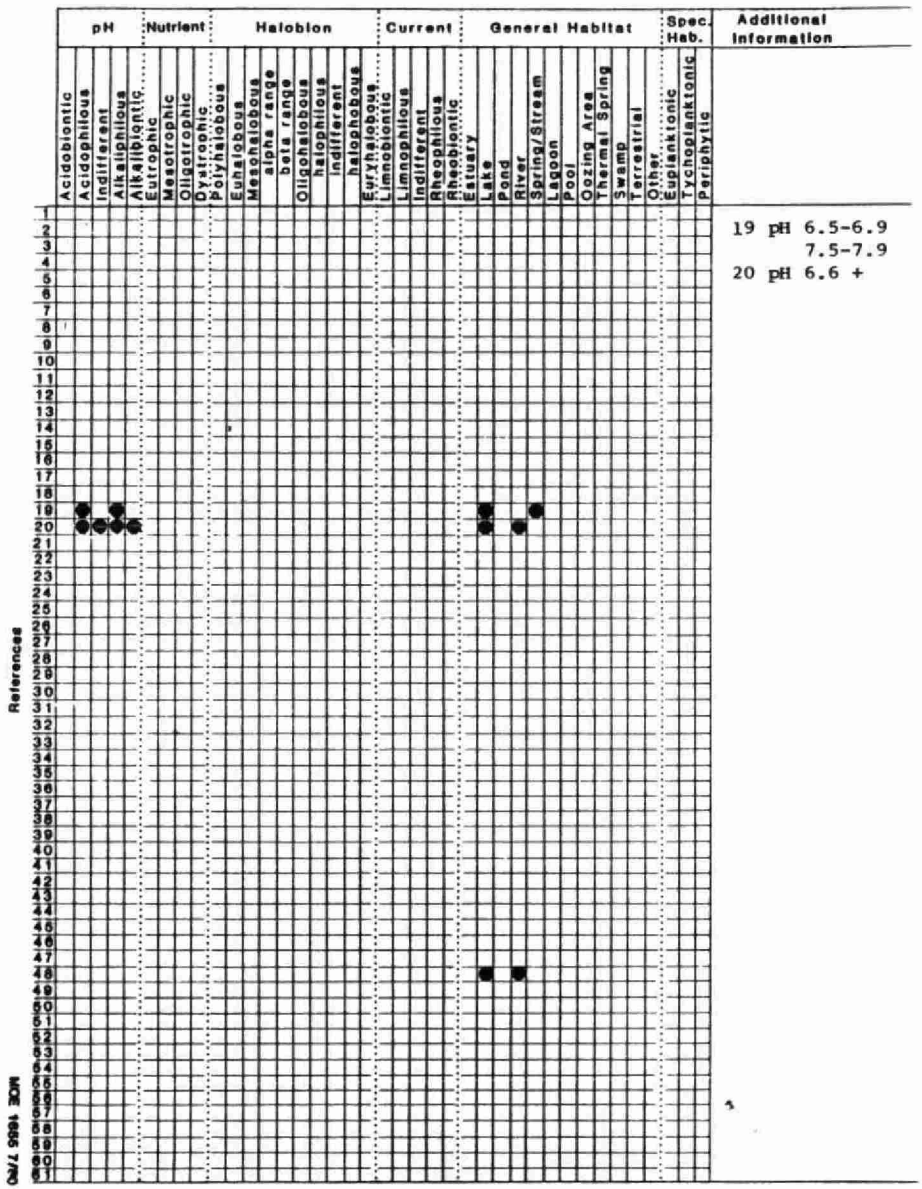
Additional information

8 pH optimum around 6
8,11,32 pH rang 6-9.0
19 pH 6.0 +
20 pH 4.0 +
29 oligosaprobi

Ministry of the Environment
Ontario

Taxon Neidium dubium f. constricta Hust.

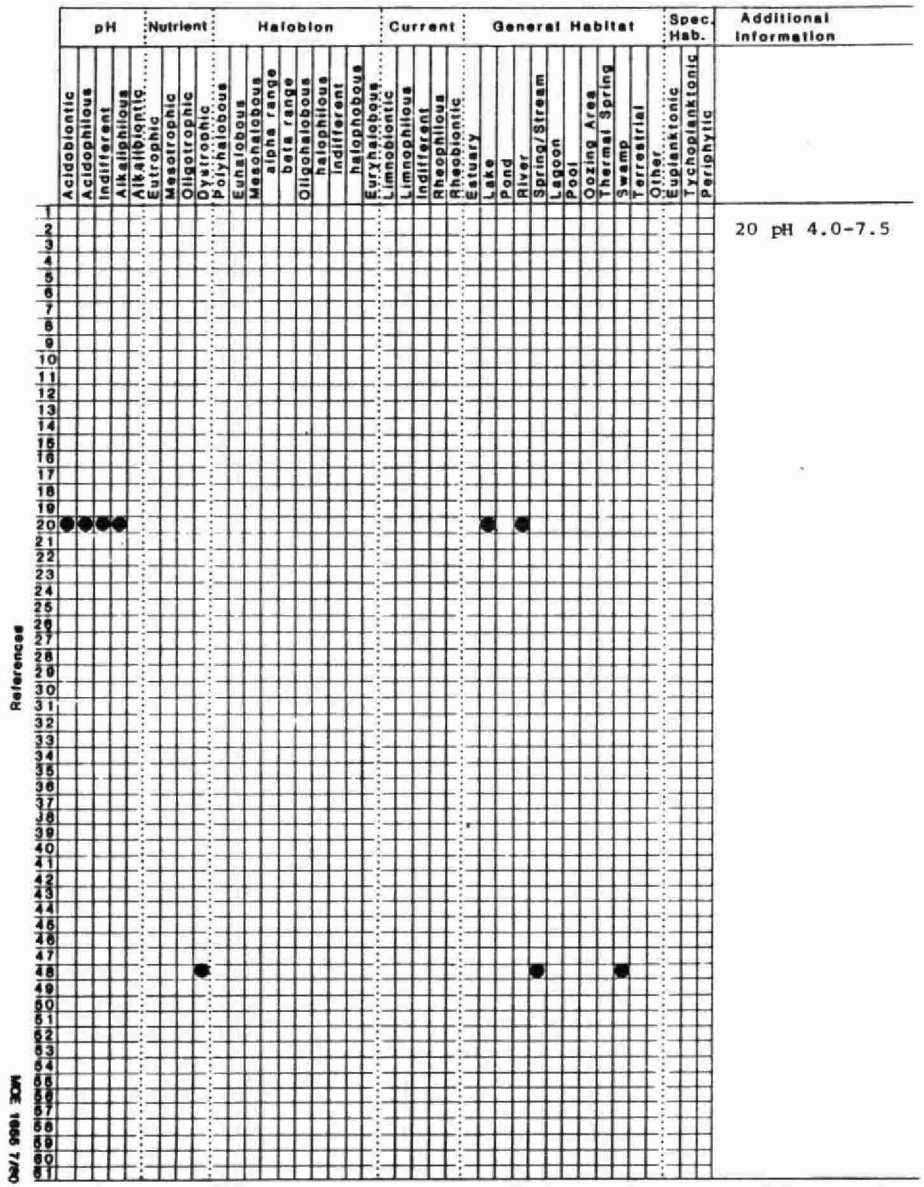
Synonym



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Ontario

Taxon Neidium hercynicum A. Mayer

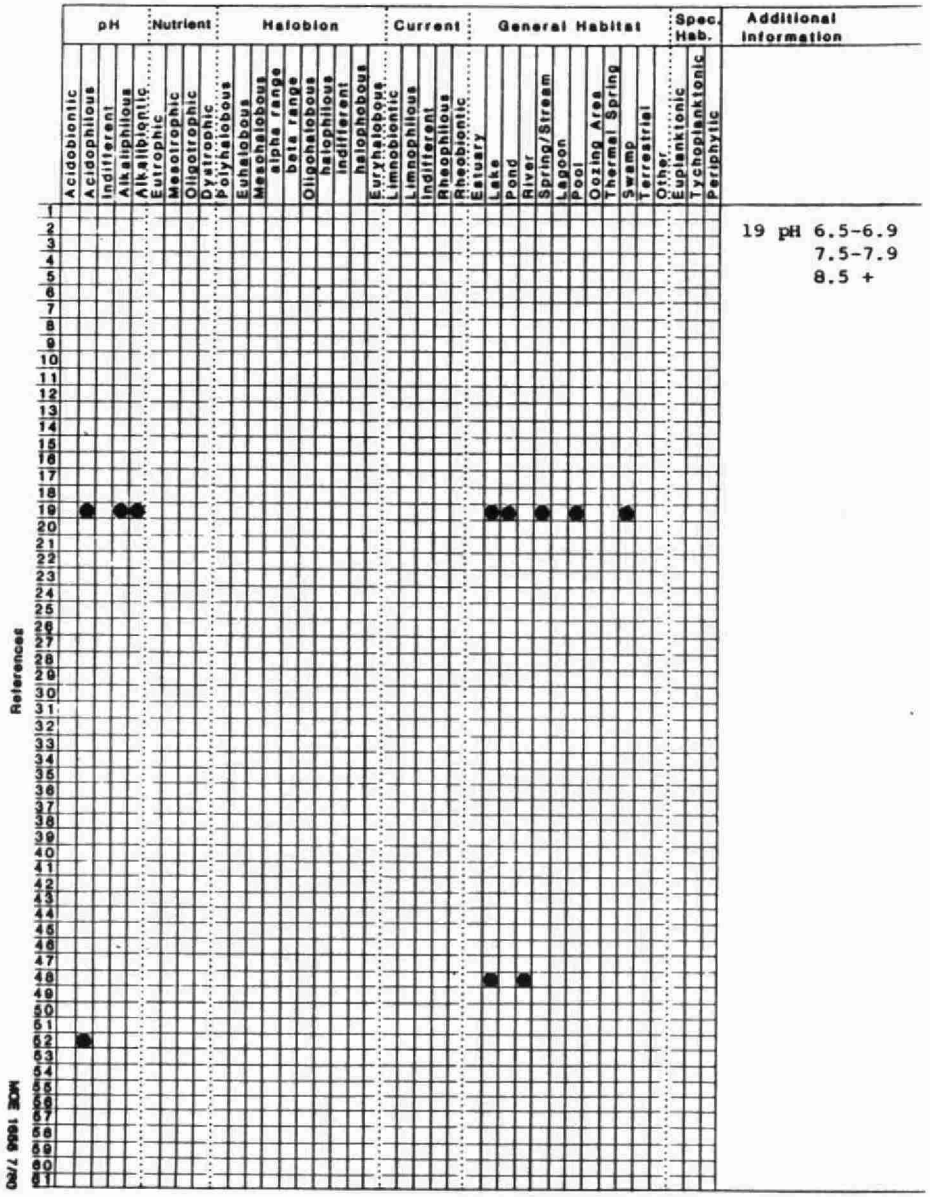
Synonym



Ministry of the Environment
Ontario

Taxon Neidium hitchcockii (Ehr.) Cl.

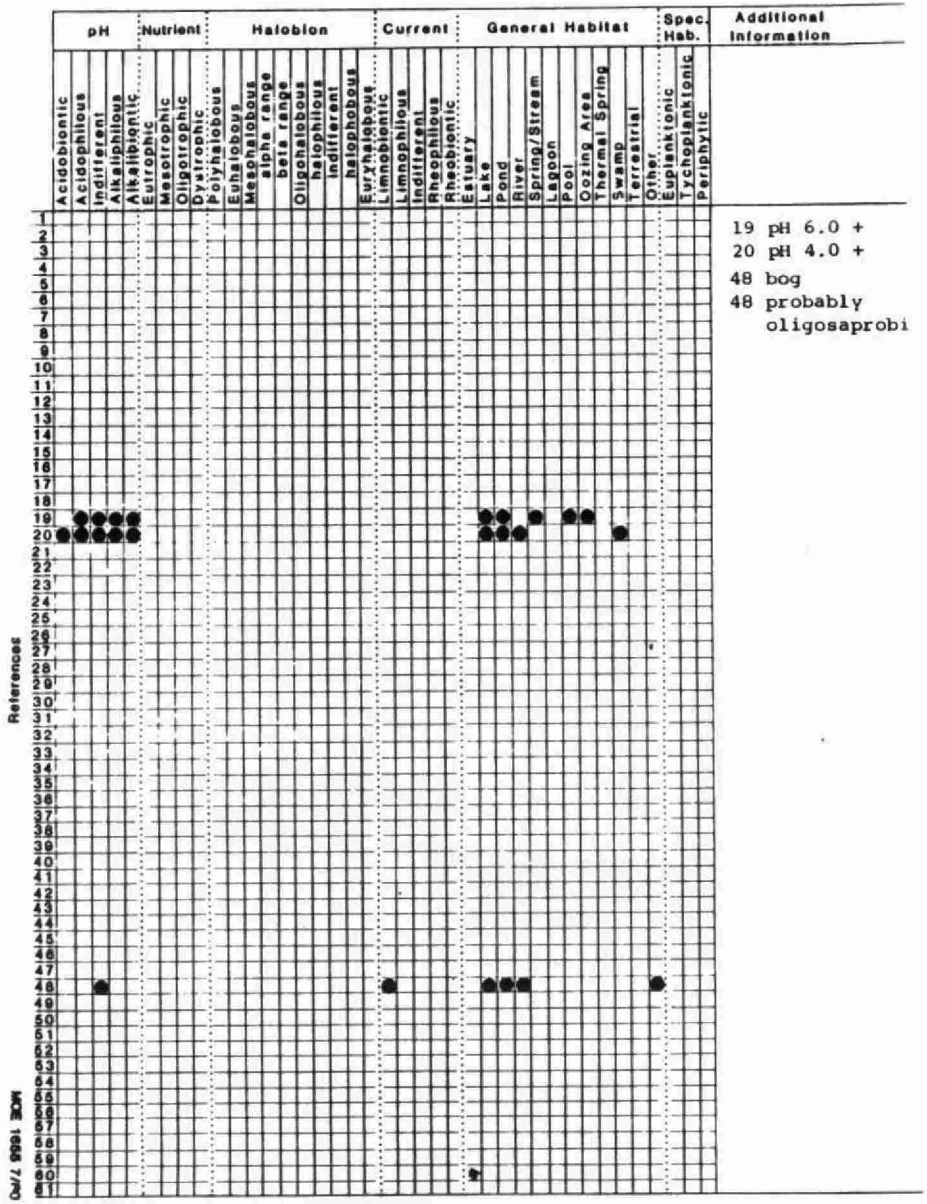
Synonym



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Taxon Neidium iridis var. amphigomphus (Ehr.) A. Mayer

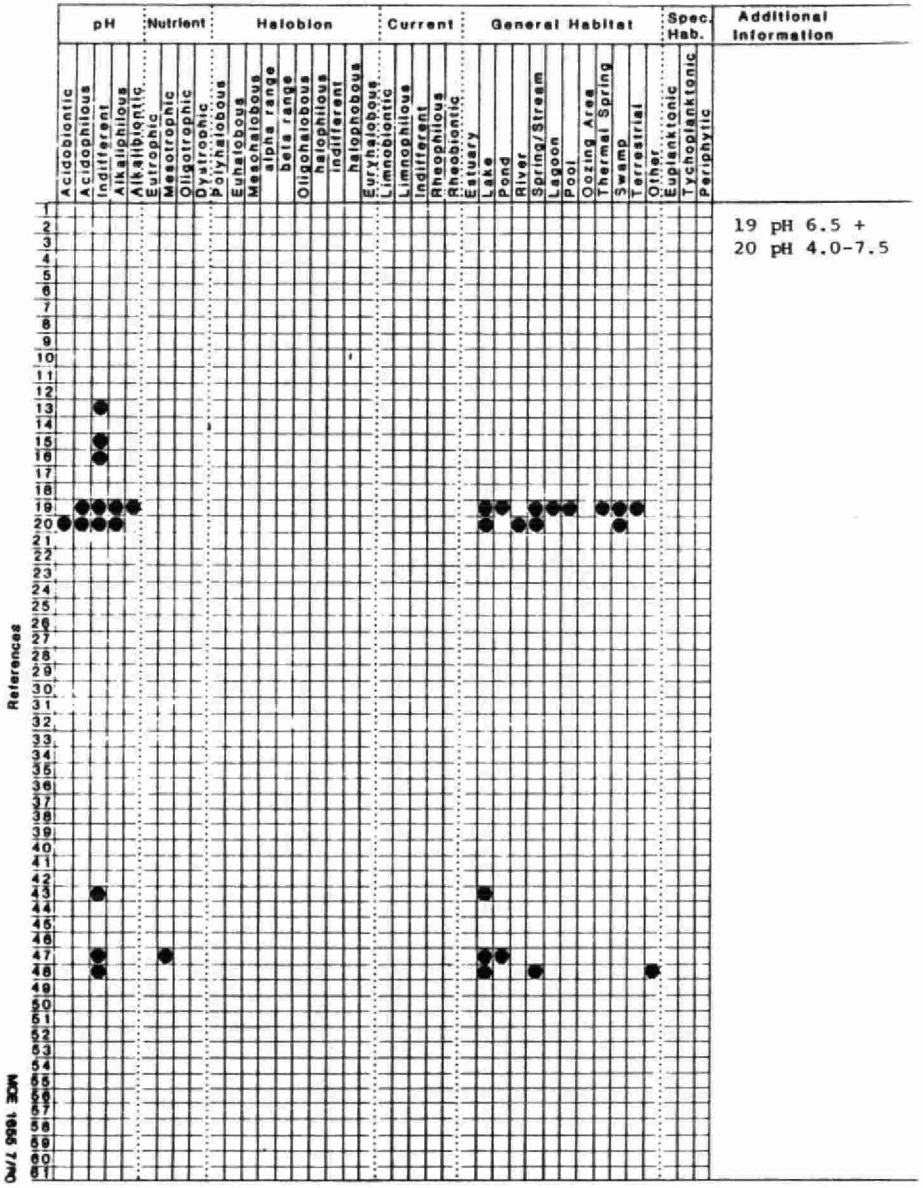
Synonym



Ministry of the Environment
Ontario

Taxon Neidium iridis var. ampliatum (Ehr.) Cl.

Synonym

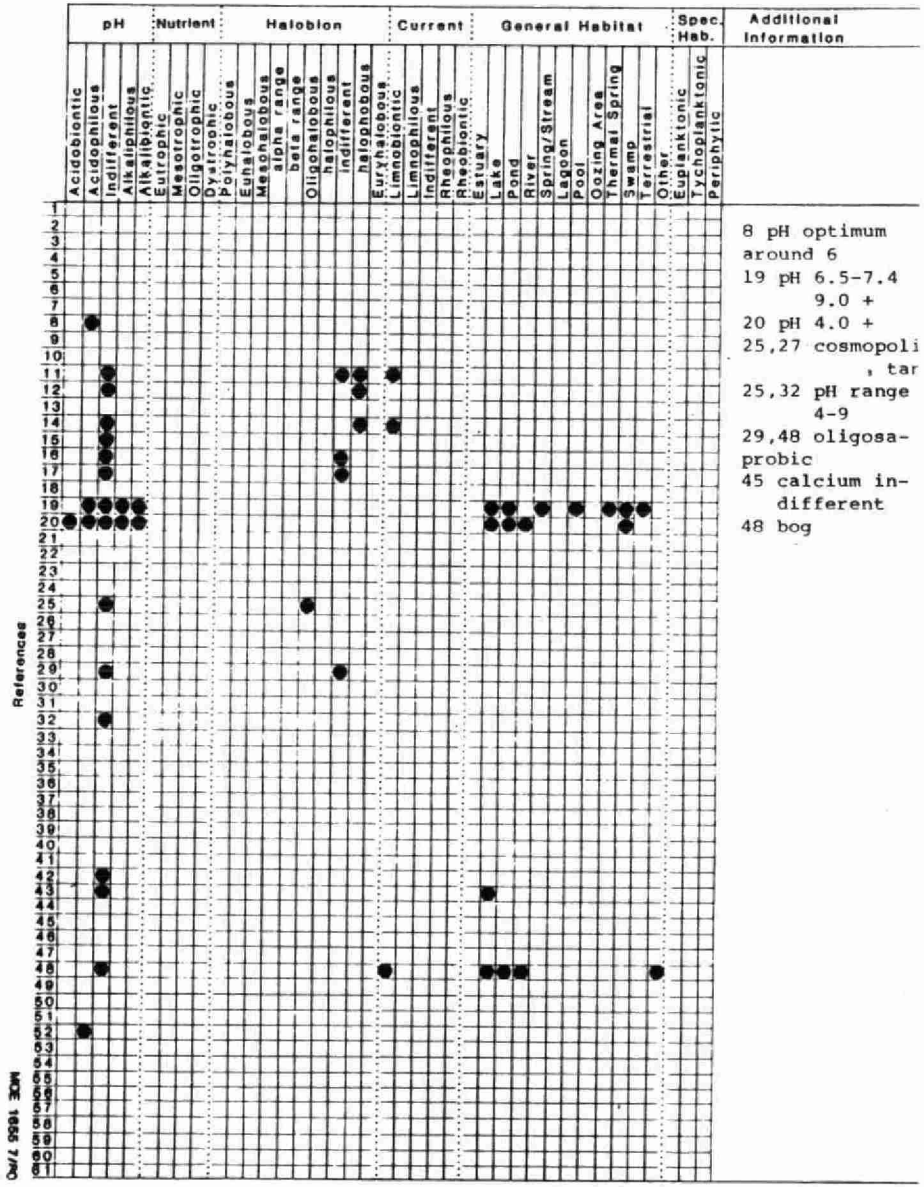


19 pH 6.5 +
20 pH 4.0-7.5

Ministry of the Environment
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Taxon Neidium iridis (Ehr.) Cl. var. iridis

Synonym

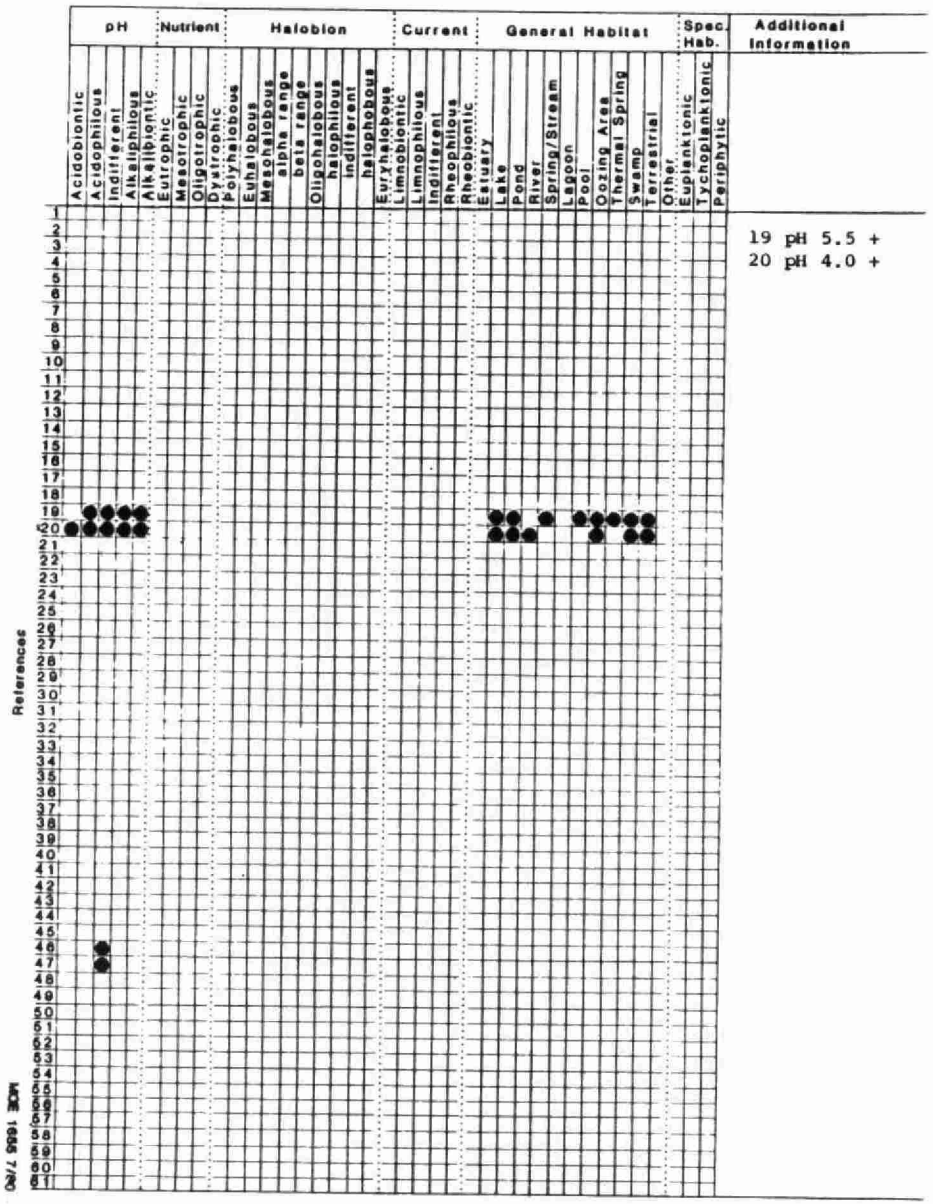


8 pH optimum around 6
19 pH 6.5-7.4
9.0 +
20 pH 4.0 +
25,27 cosmopoli
, tar
25,32 pH range 4-9
29,48 oligosaprobic
45 calcium indifferent
48 bog

Ministry of the Environment
Ontario

Taxon Neidium iridis f. vernalis Reich.

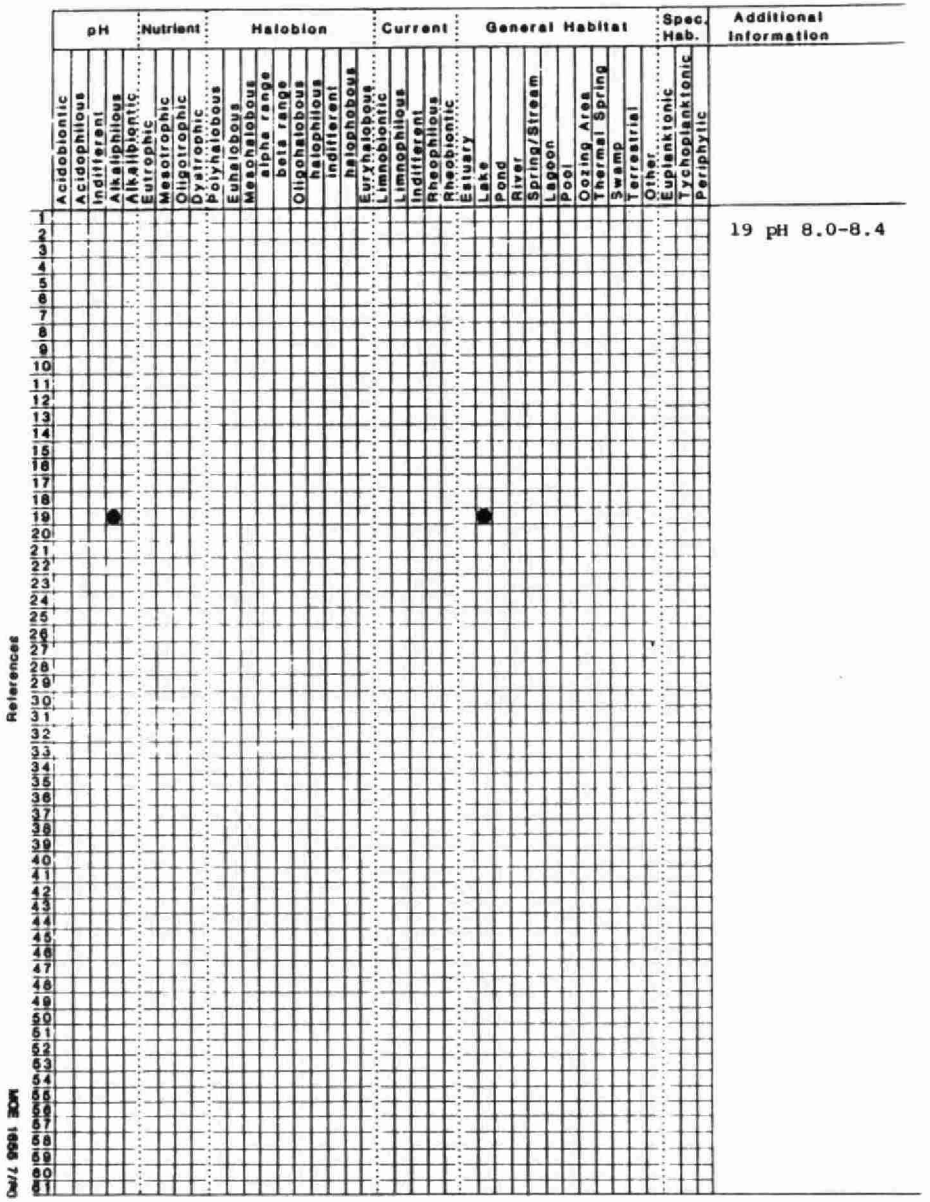
Synonym



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Ontario

Taxon Neidium kozlowii Meresch.

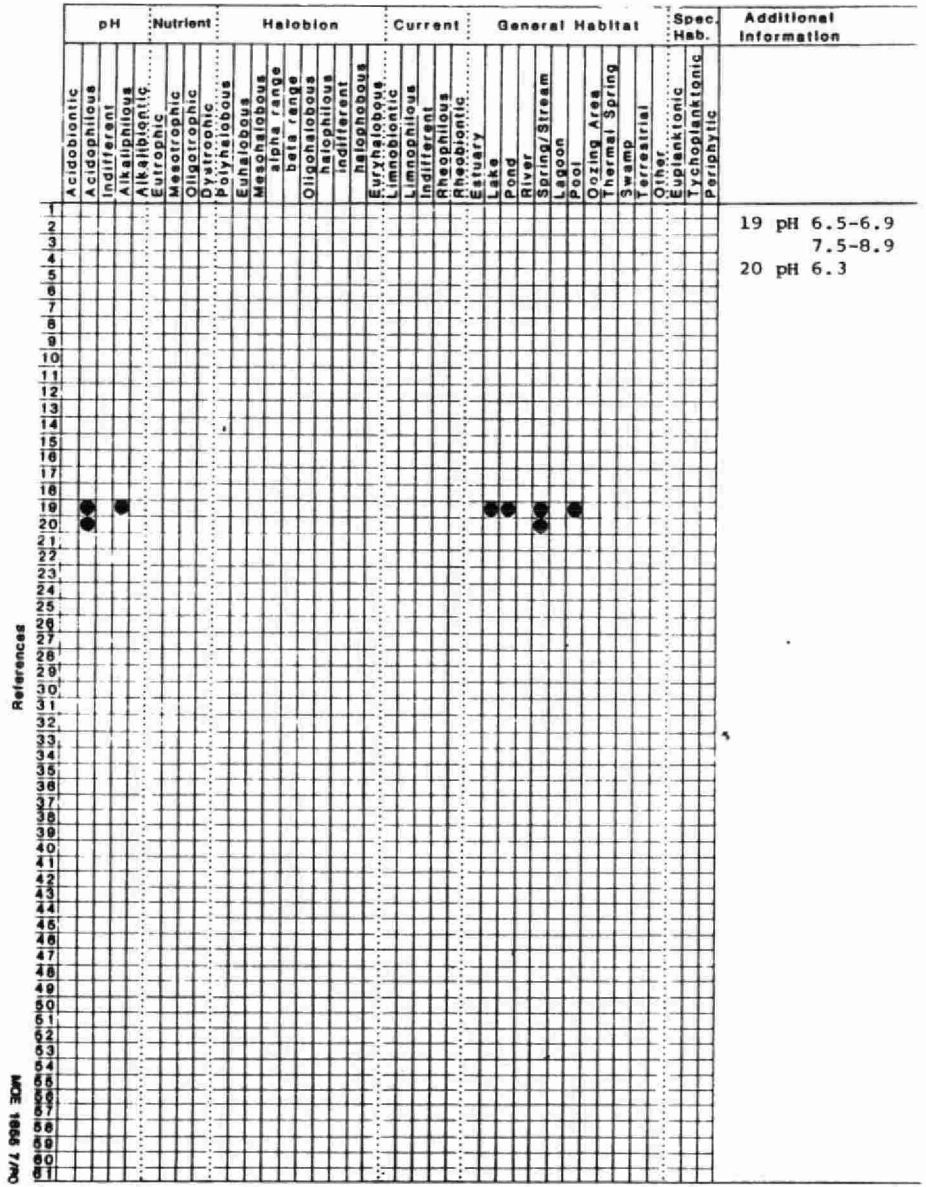
Synonym



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Ontario

Taxon Neidium ladogense (Cl.) Foged

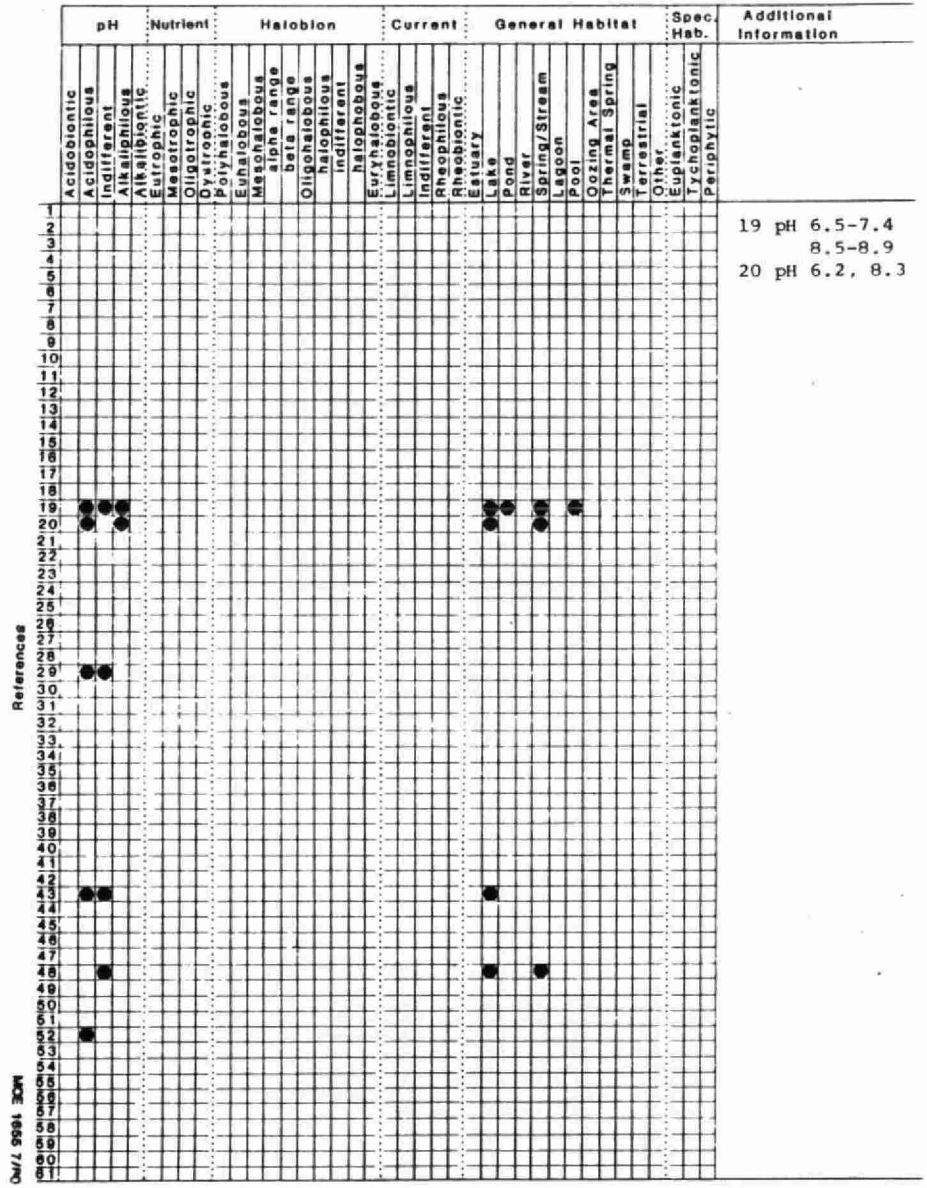
Synonym



Ministry of the Environment
Ontario

Taxon Neidium productum (W. Sm.) Cl.

Synonym



Ministry of the Environment
Ontario

Taxon Neidium temperei Reim.

Synonym

pH					Nutrient				Halobion								Current				General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						19 pH 7.5-7.9 48 open water form

References

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Ontario

Taxon Neidium tenuissimum Hust.

Synonym

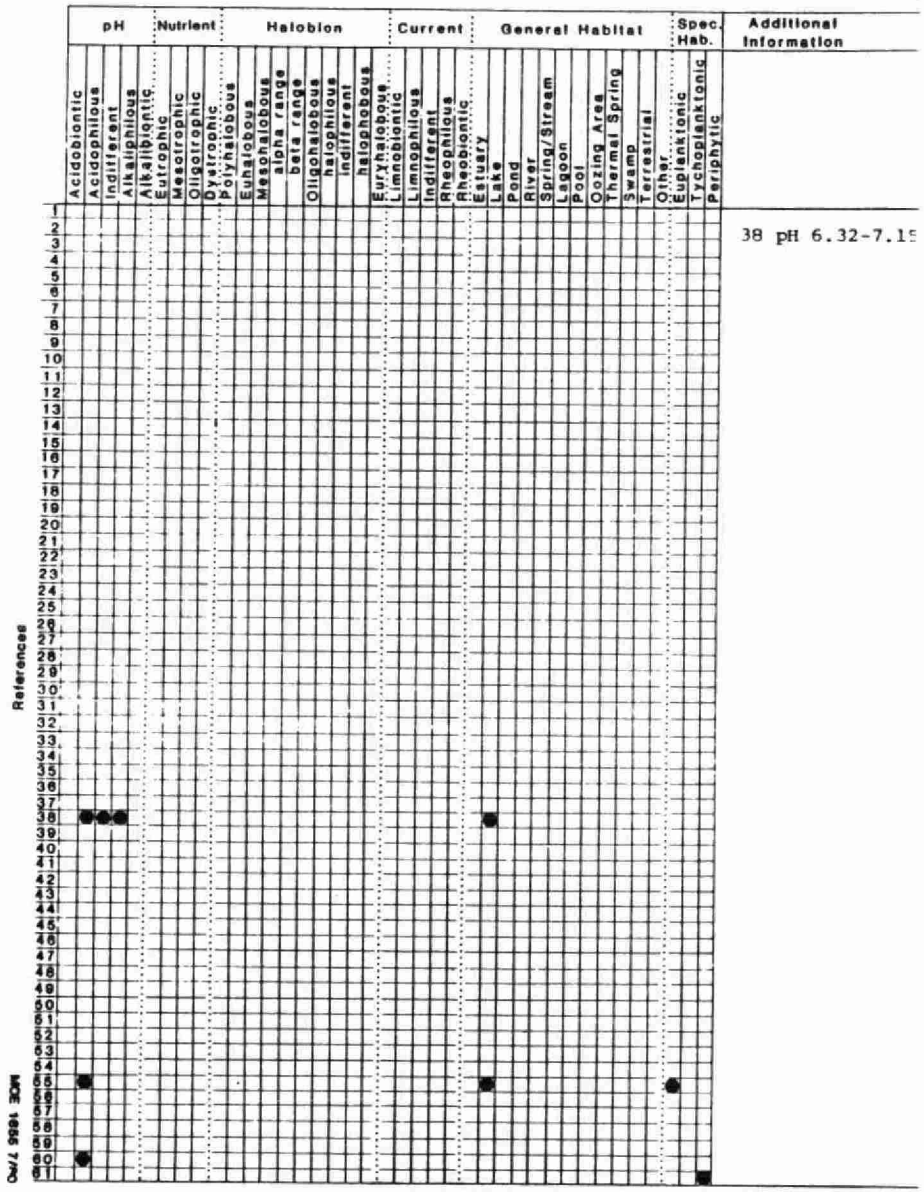
pH					Nutrient				Halobion								Current				General Habitat									Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhaloboys	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
																																						20 pH 4.0-6.5

References

Ministry of the Environment
Ontario

Taxon Nitzschia sp.

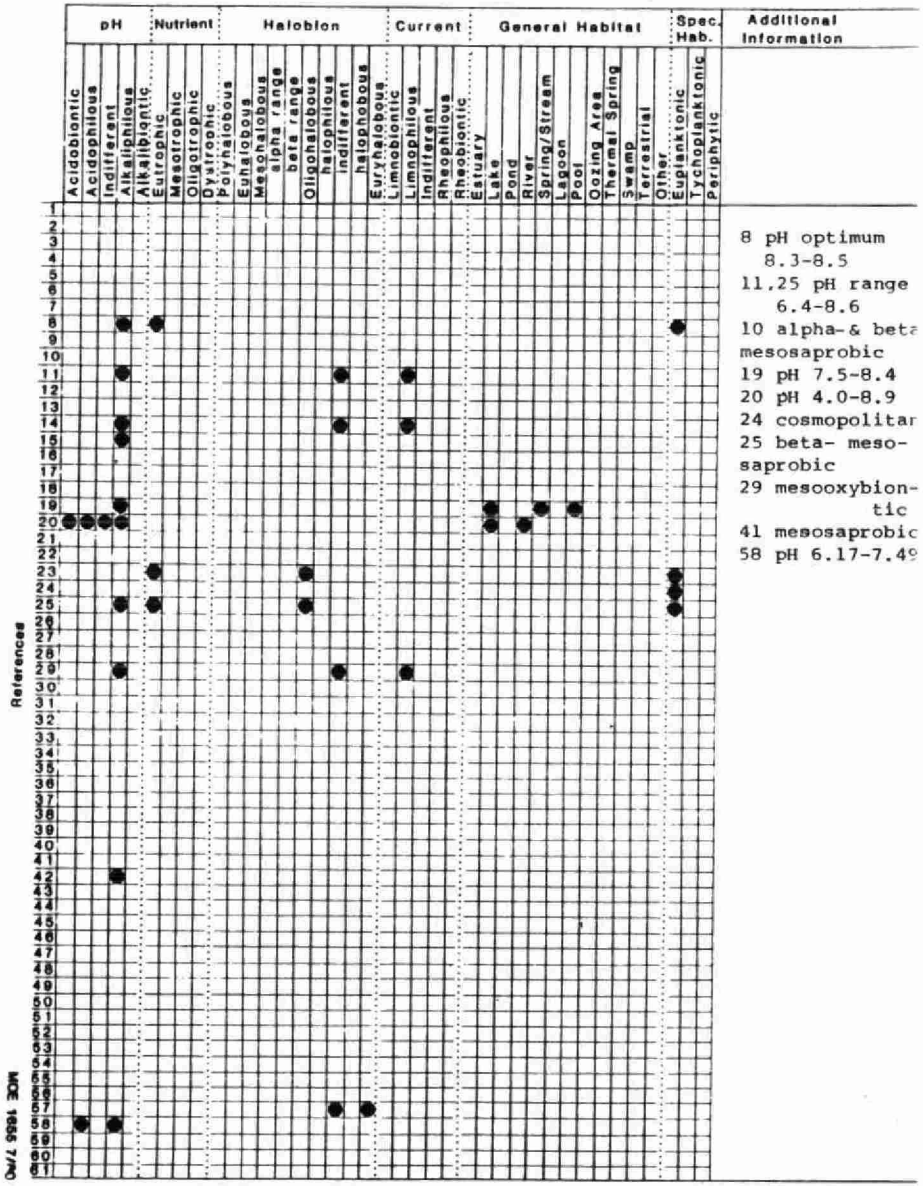
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Ontario

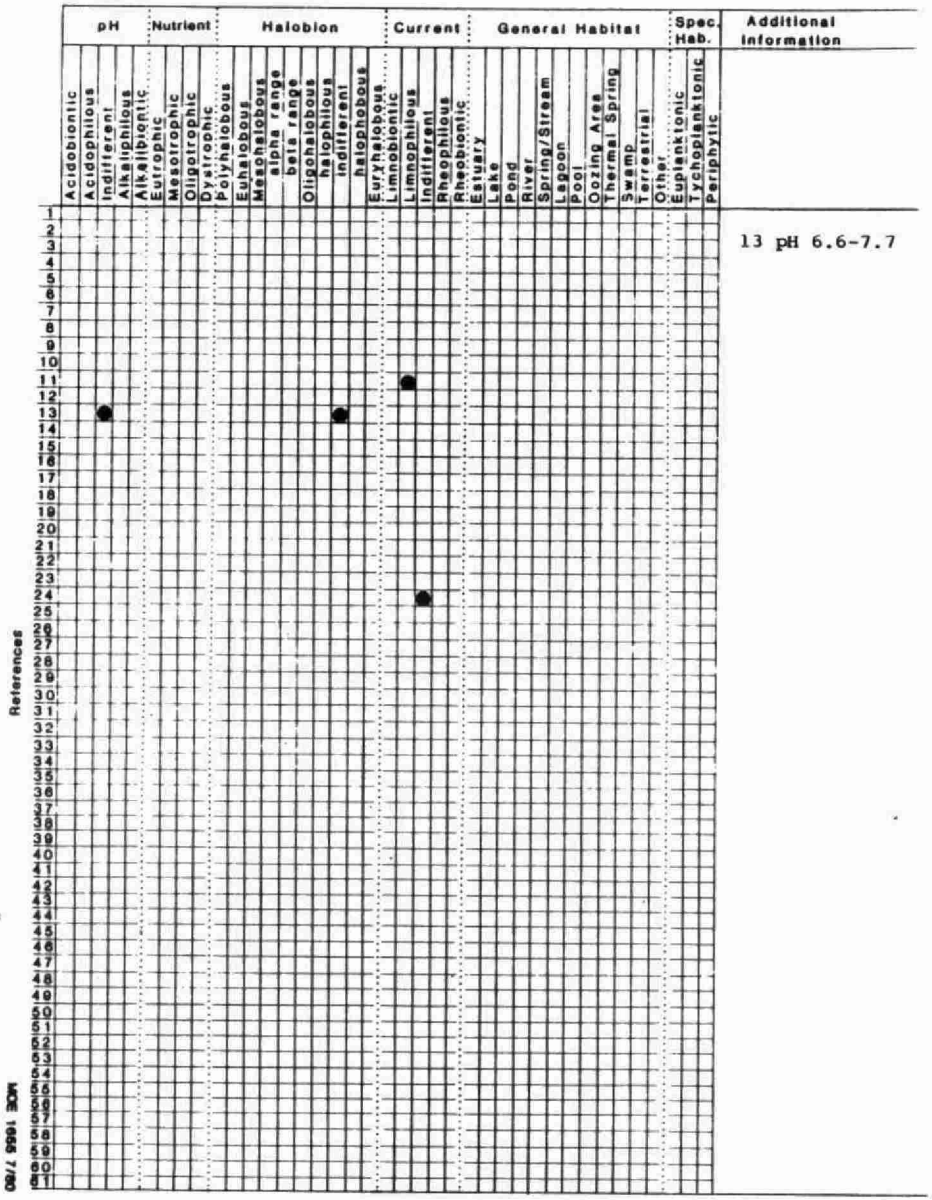
Taxon Nitzschia acicularis W. Sm.

Synonym



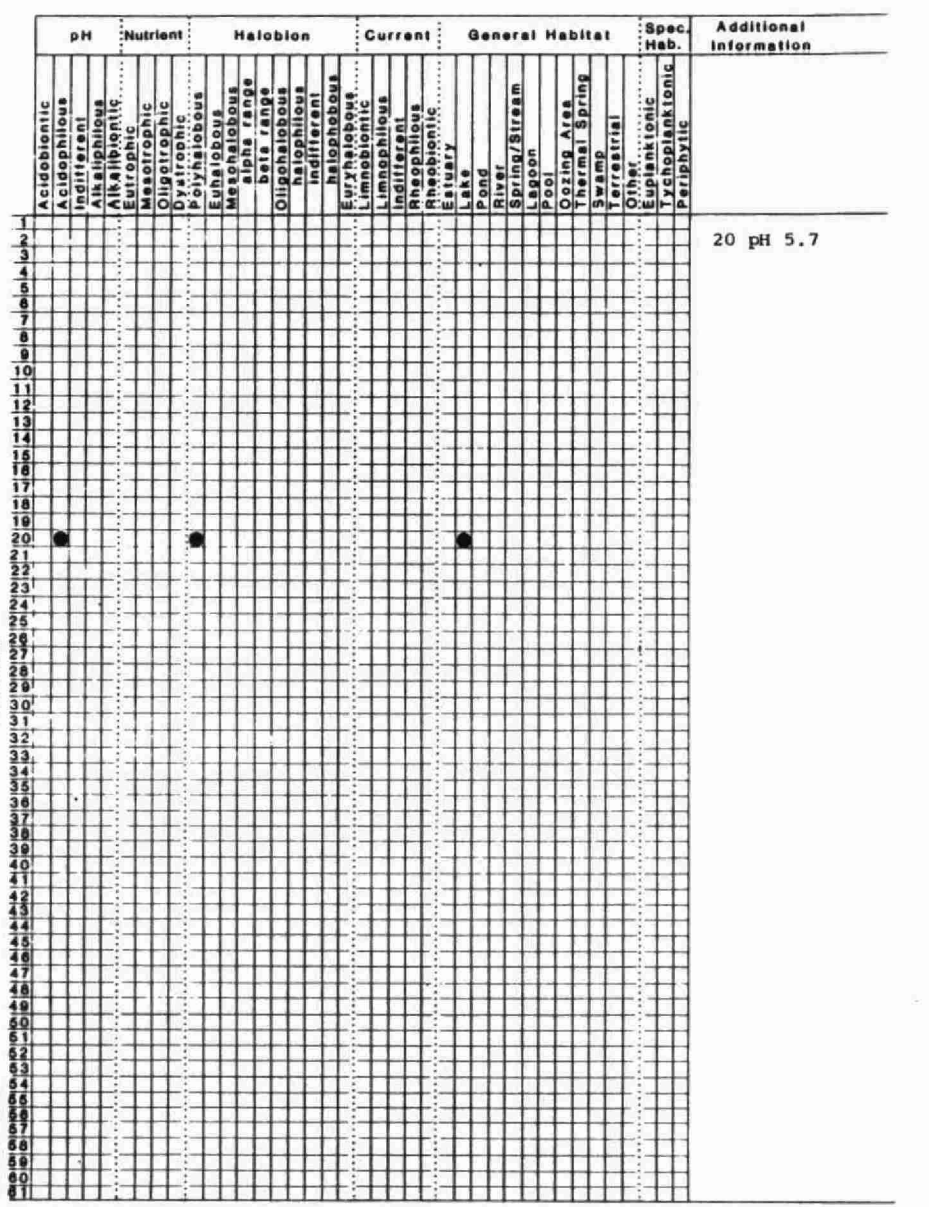
Taxon Nitzschia actinastroides (Lemm.) Van Goor

Synonym Synedra actinastroides Lemm.



Taxon Nitzschia acuminata (W. Sm.) Grun.

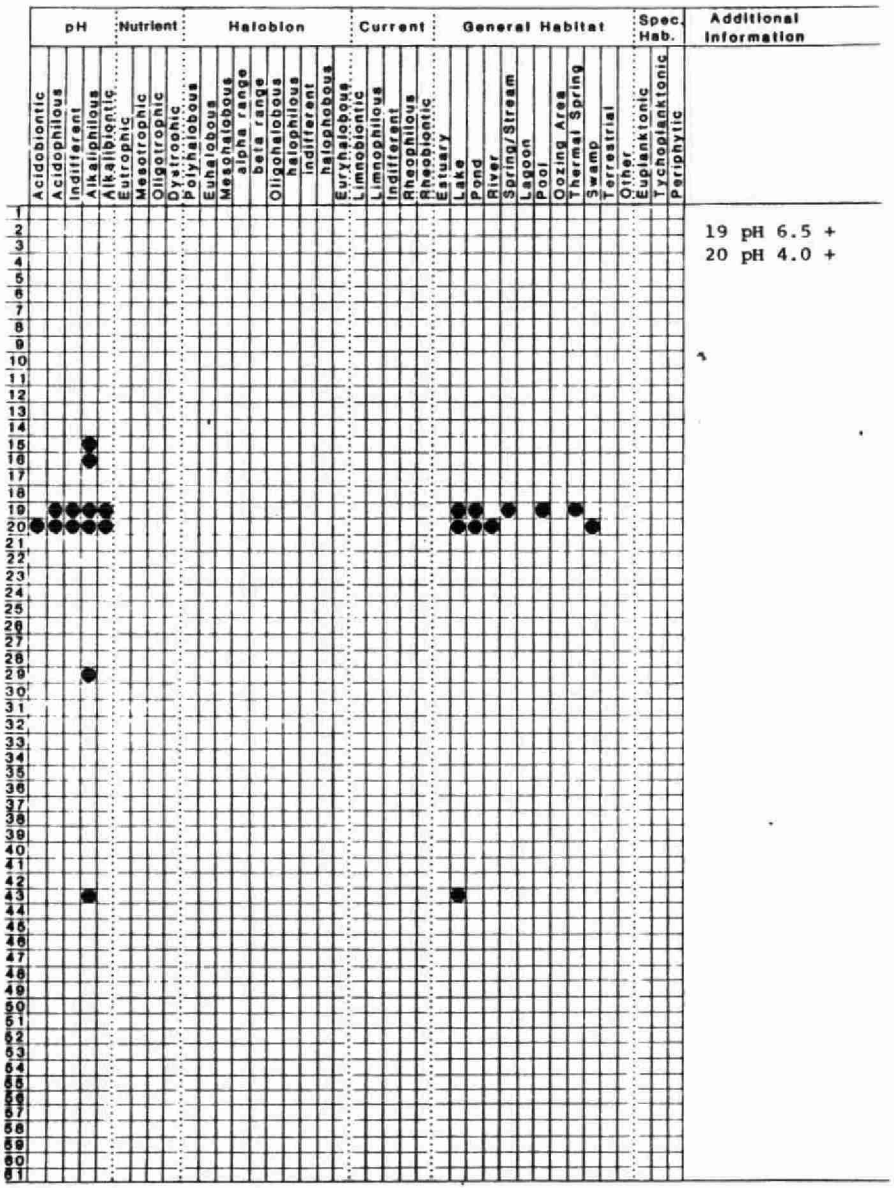
Synonym



Ministry of the Environment
Ontario

Taxon Nitzschia acuta Hantzsch.

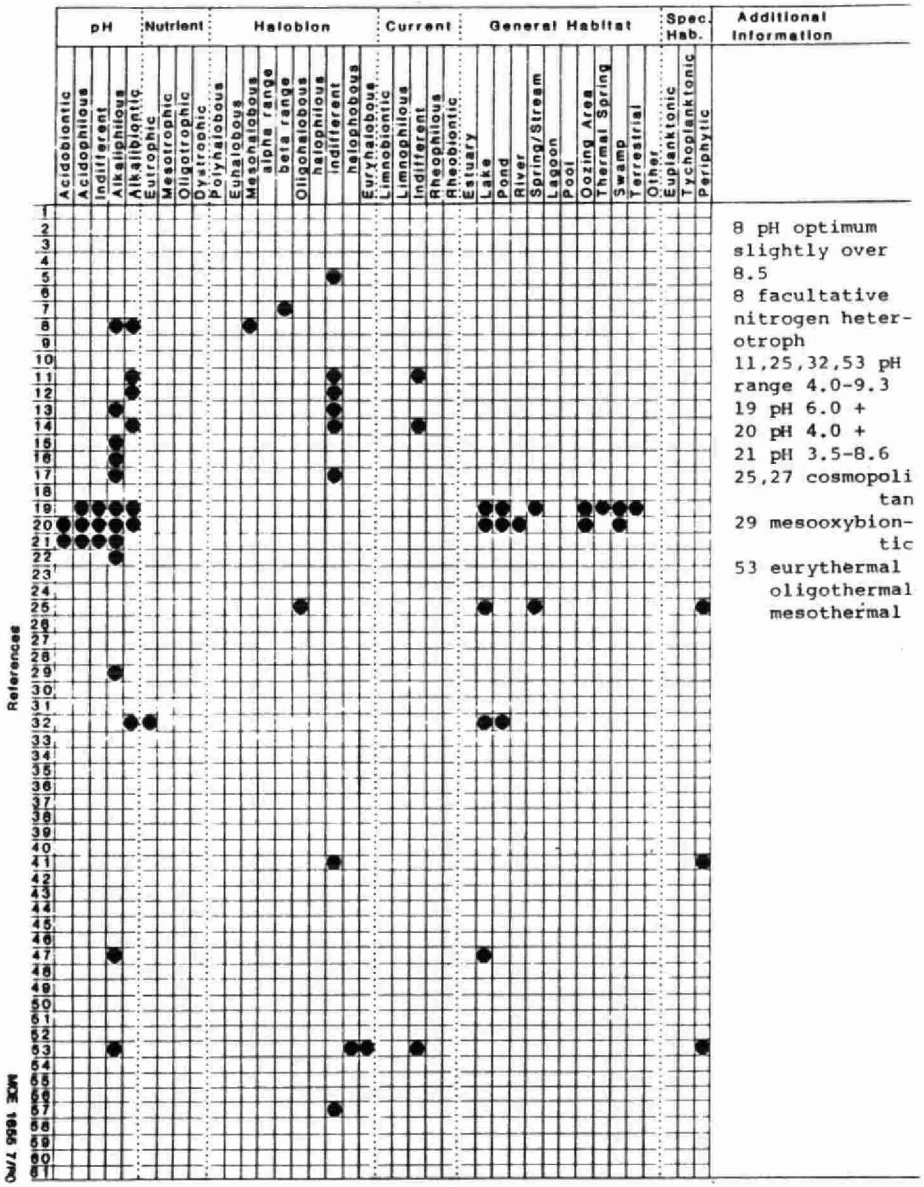
Synonym



Ministry of the Environment
Ontario

Taxon Nitzschia amphibia Grun. var. amphibia

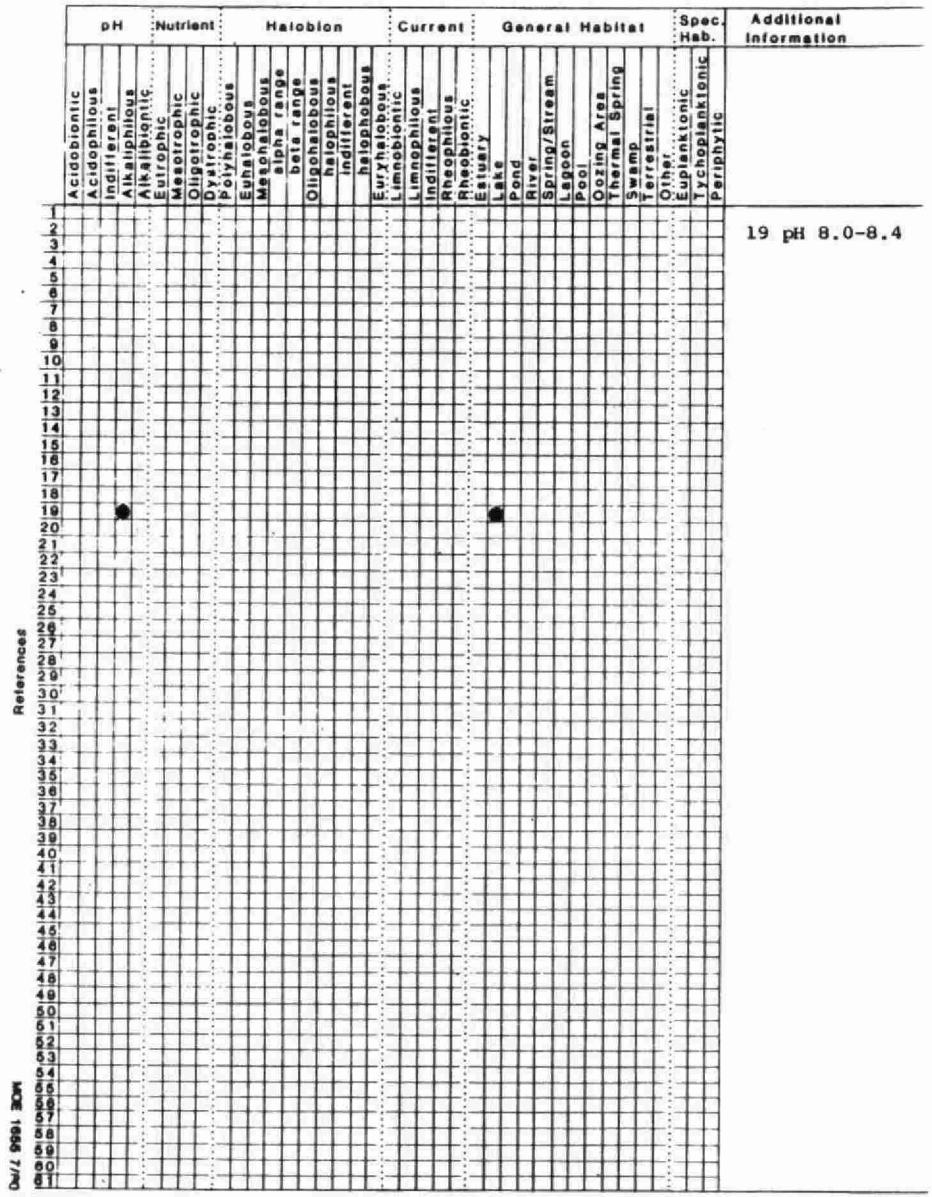
Synonym



Ministry of the Environment
Ontario

Taxon Nitzschia amphibia var. thermalis Peter.

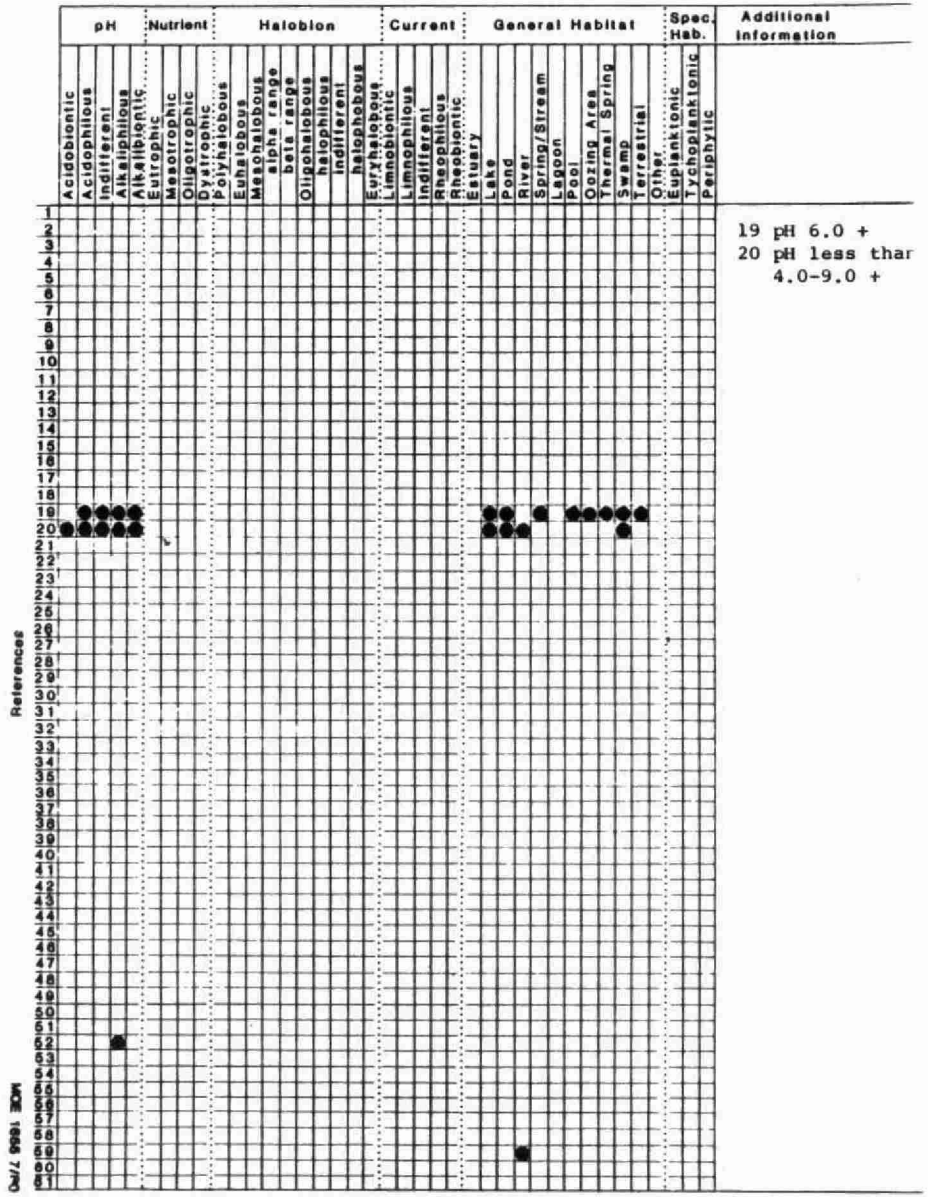
Synonym



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Ontario

Taxon Nitzschia angustata var. acuta Grun.

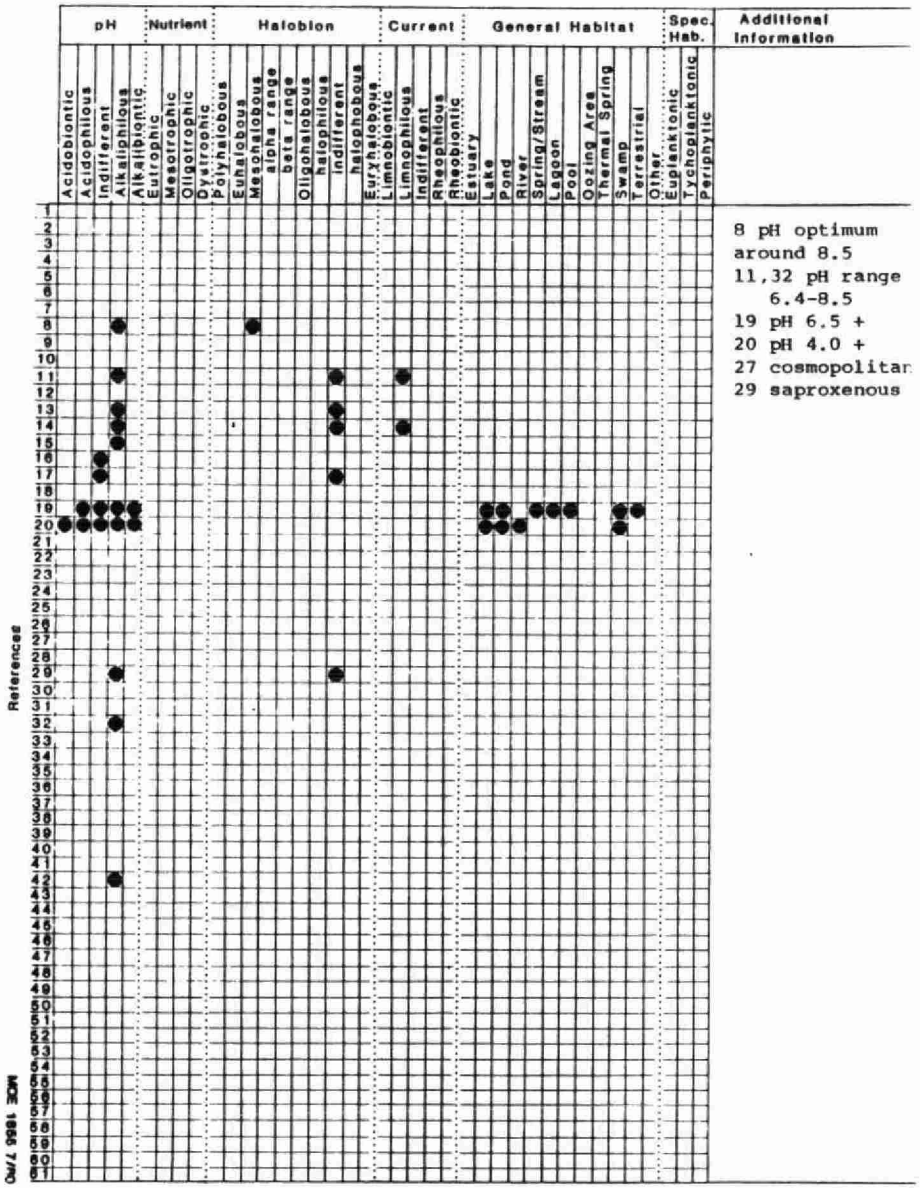
Synonym



Ministry of the Environment
Ontario

Taxon Nitzschia angustata (W. Sm.) Grun. var. angustata

Synonym

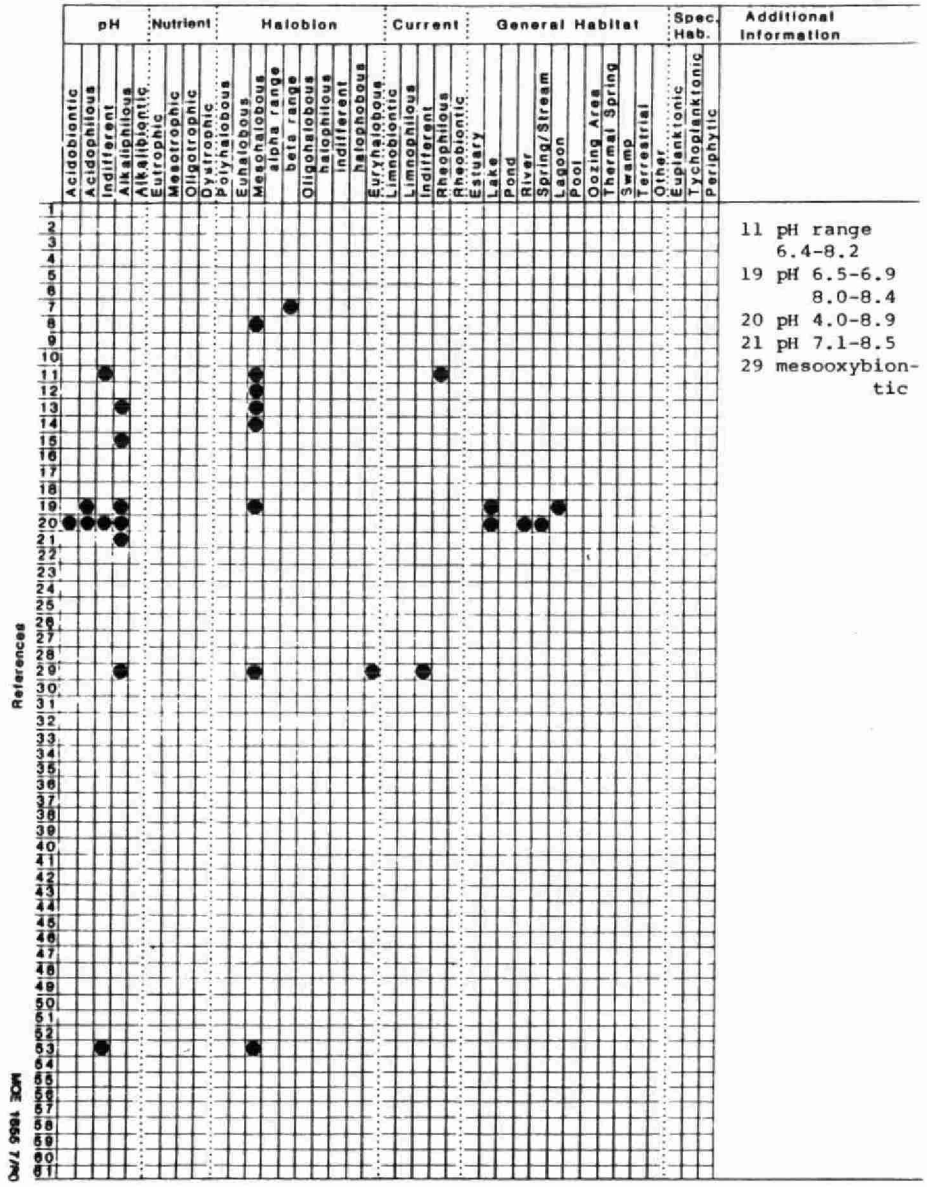


8 pH optimum around 8.5
11,32 pH range 6.4-8.5
19 pH 6.5 +
20 pH 4.0 +
27 cosmopolitan
29 saproxenous

Ministry of the Environment
Ontario

Taxon Nitzschia apiculata (Greg.) Grun.

Synonym

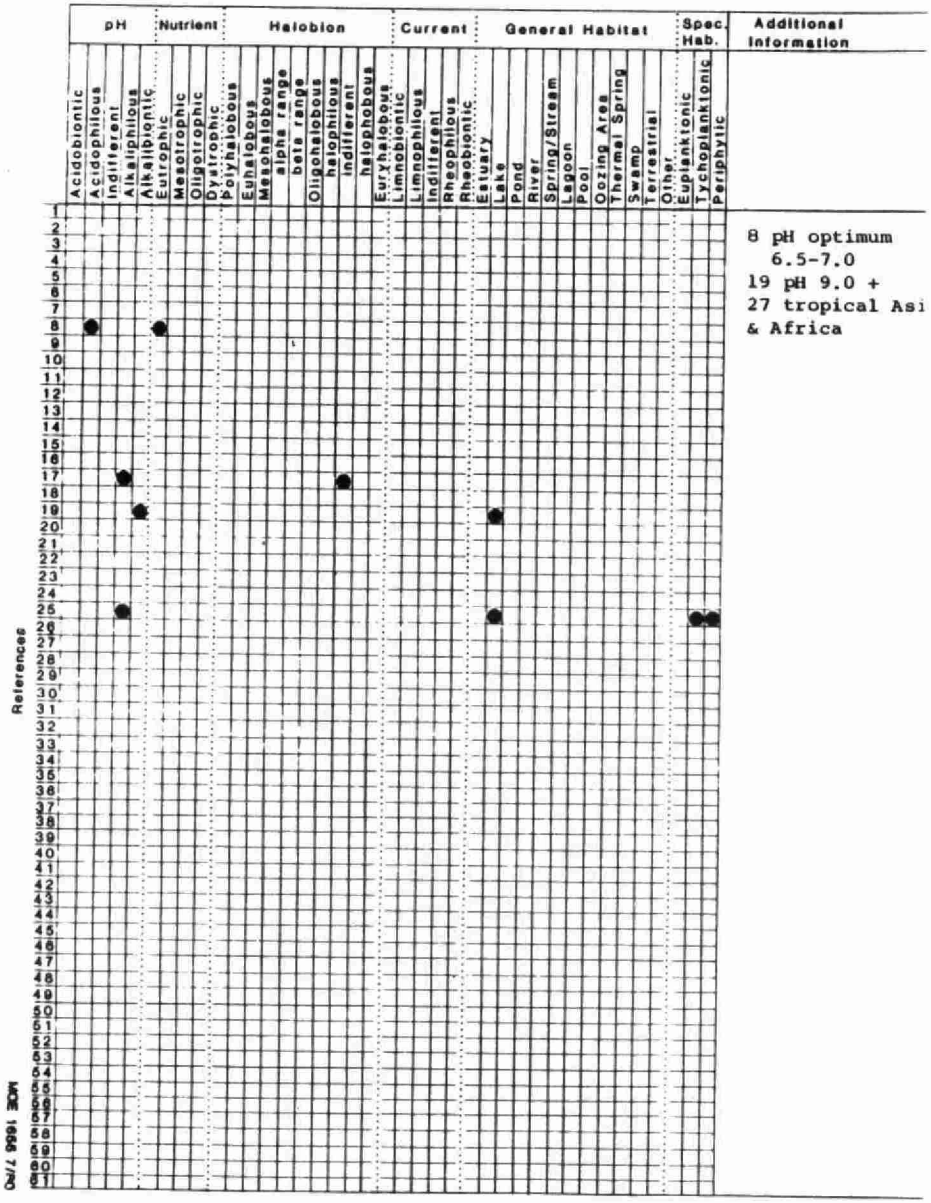


11 pH range 6.4-8.2
19 pH 6.5-6.9 8.0-8.4
20 pH 4.0-8.9
21 pH 7.1-8.5
29 mesooxybiontic

Ministry of the Environment
Ontario

Taxon Nitzschia bacata Hust.

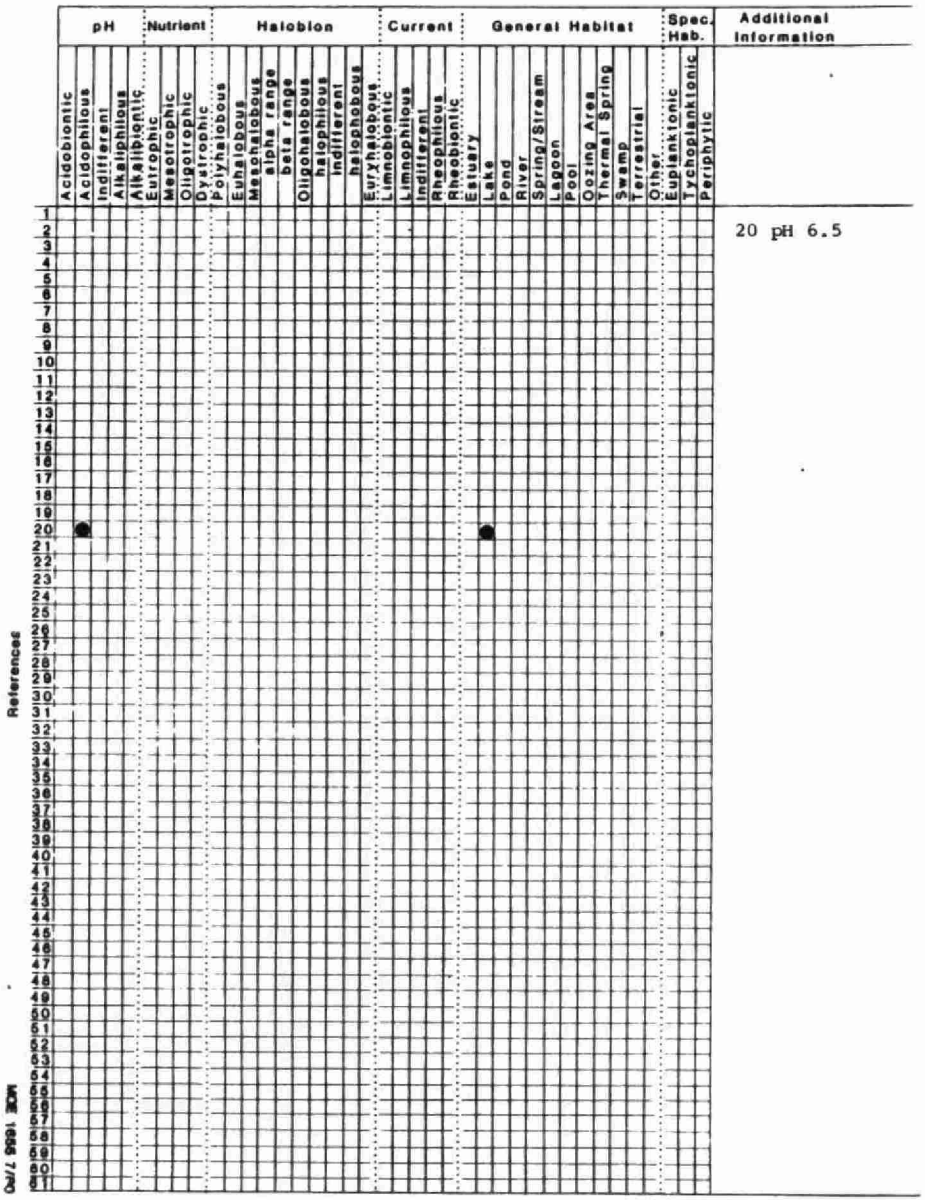
Synonym



Ministry of the Environment
Ontario

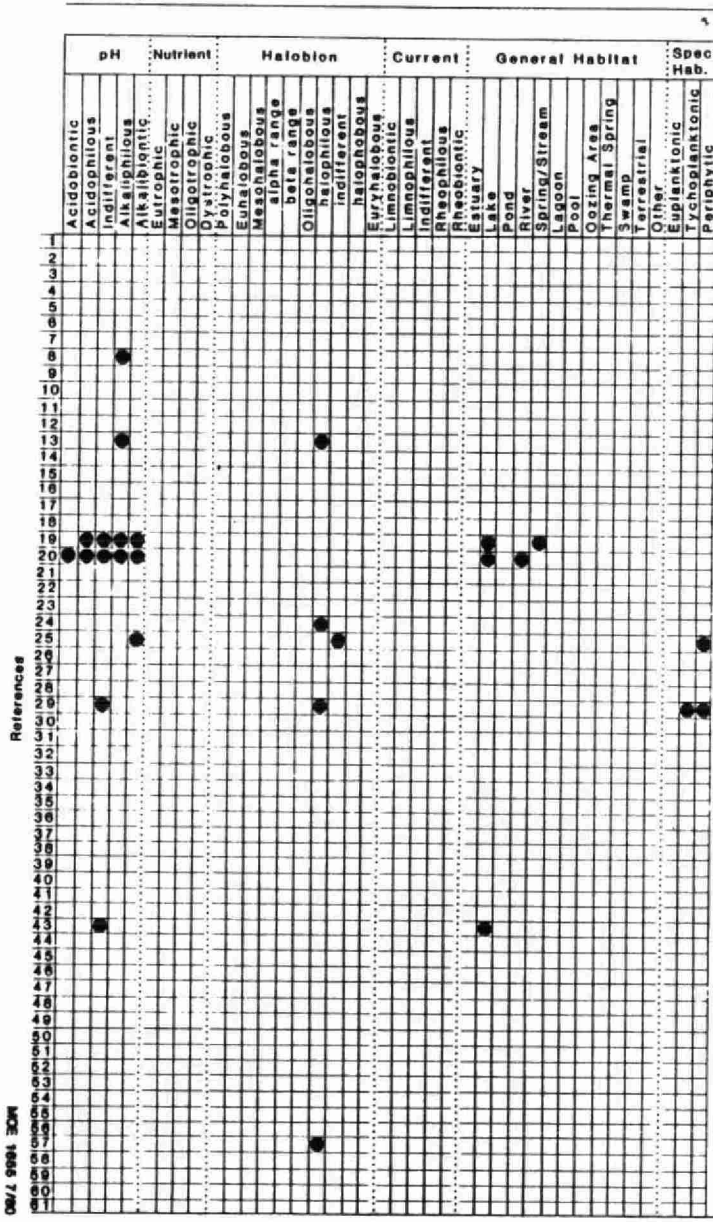
Taxon Nitzschia bremensis Hust.

Synonym



Taxon Nitzschia capitellata Hust.

Synonym

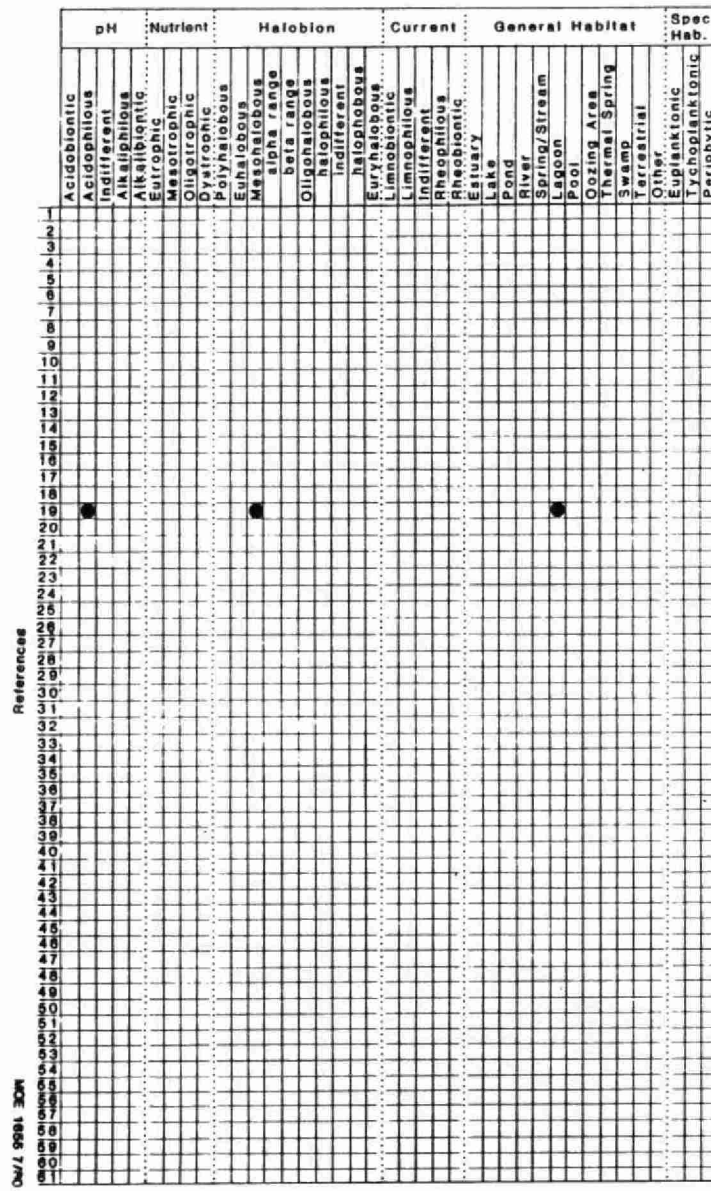


8 pH optimum 7.3-7.8
8 obligate nitrogen heterotroph
19 pH 6.5-7.9 9.0 +
20 pH 4.0 +
25,27 found in Europe & tropical Asia
25,29 pH range 7-9.2
27 Africa
29 mesooxybiontic

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Ontario

Taxon Nitzschia circumsuta (Bail.)Grun.

Synonym

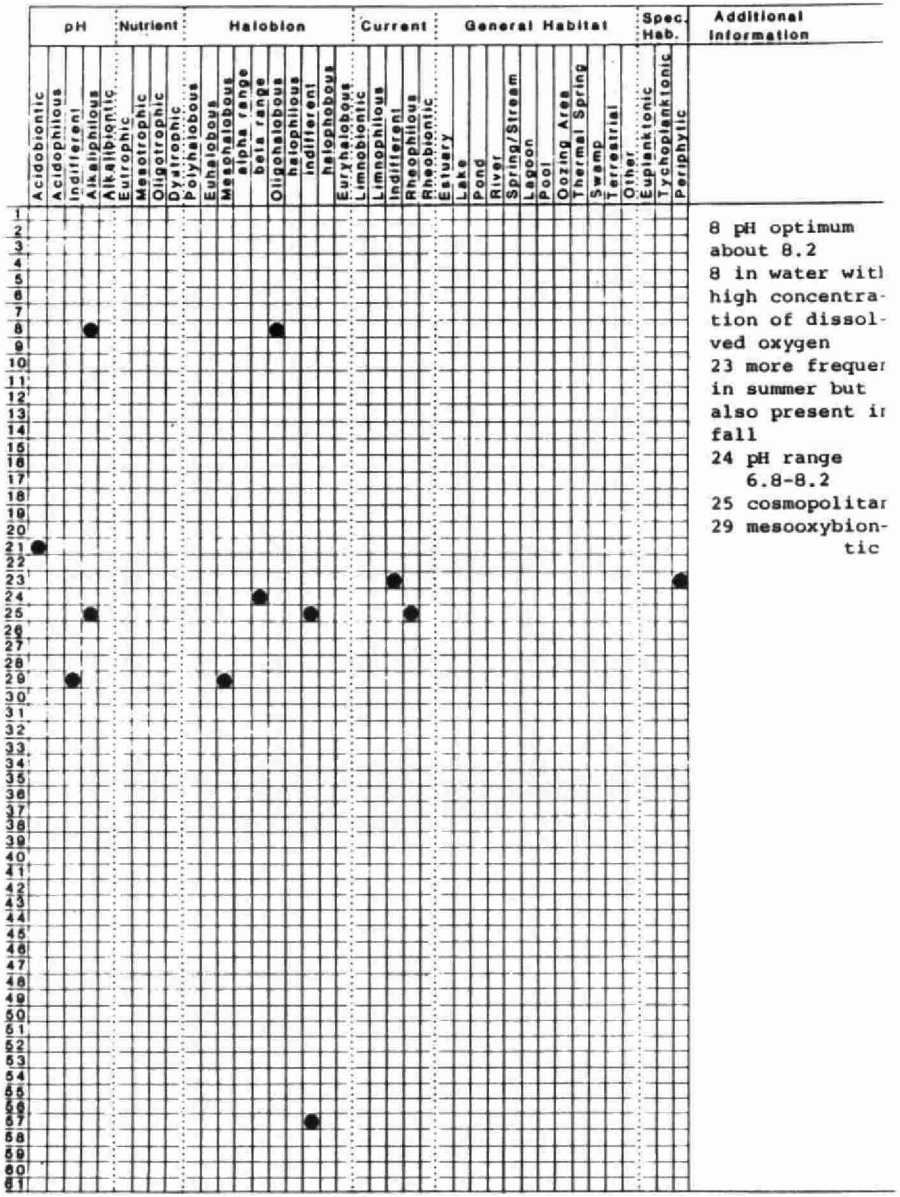


19 pH 6.5-6.9

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Taxon Nitzschia clausii Hantzsch.

Synonym

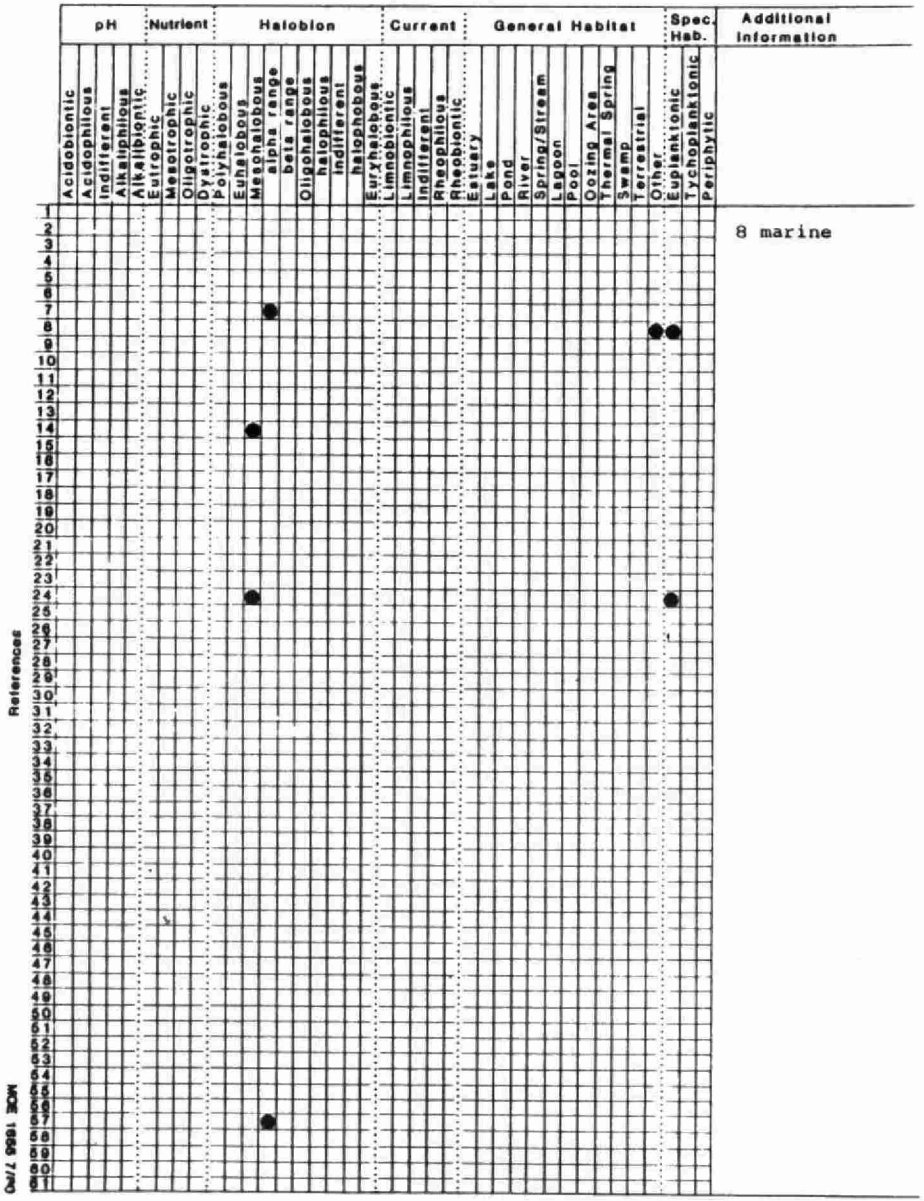


8 pH optimum about 8.2
8 in water with high concentration of dissolved oxygen
23 more frequent in summer but also present in fall
24 pH range 6.8-8.2
25 cosmopolitan
29 mesooxybiontic

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Ontario

Taxon Nitzschia closterium (Ehr.) W. Sm.

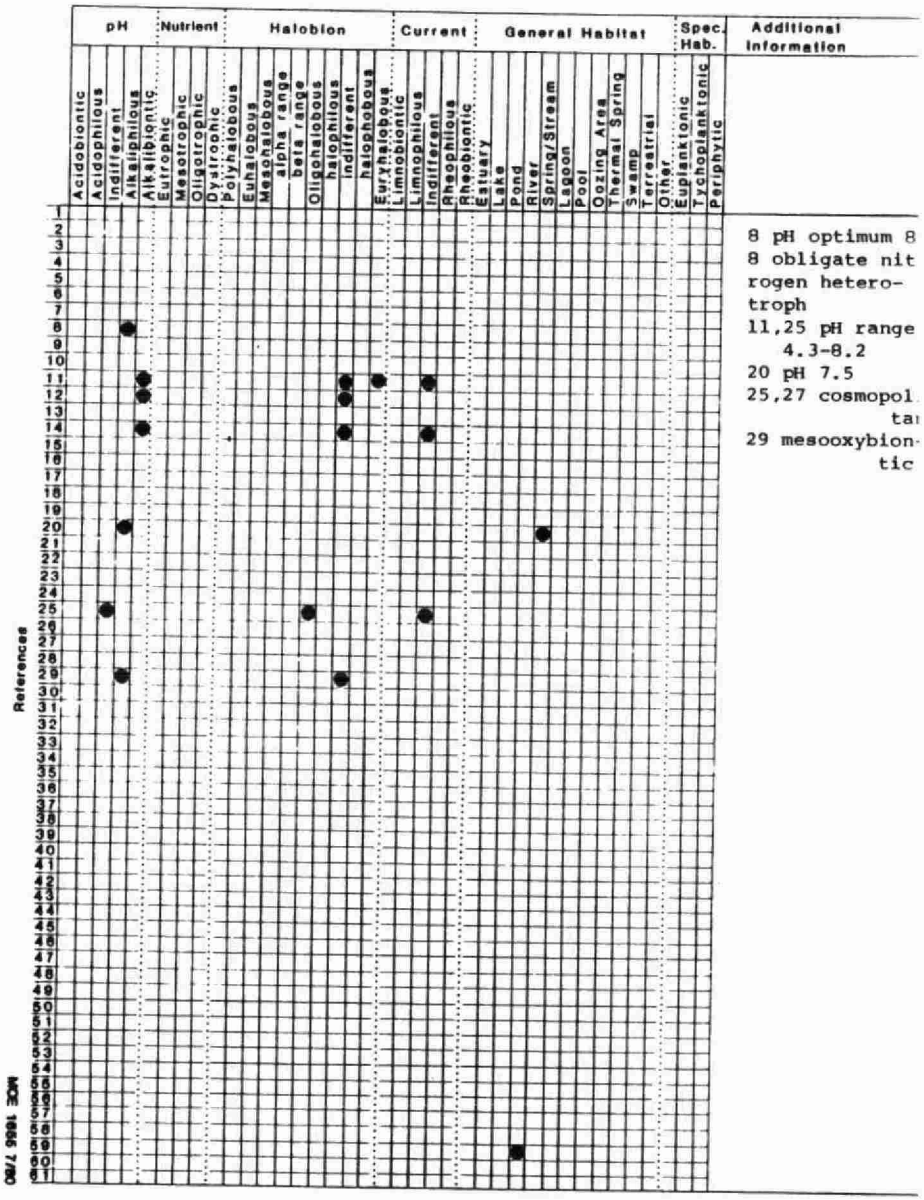
Synonym



8 marine

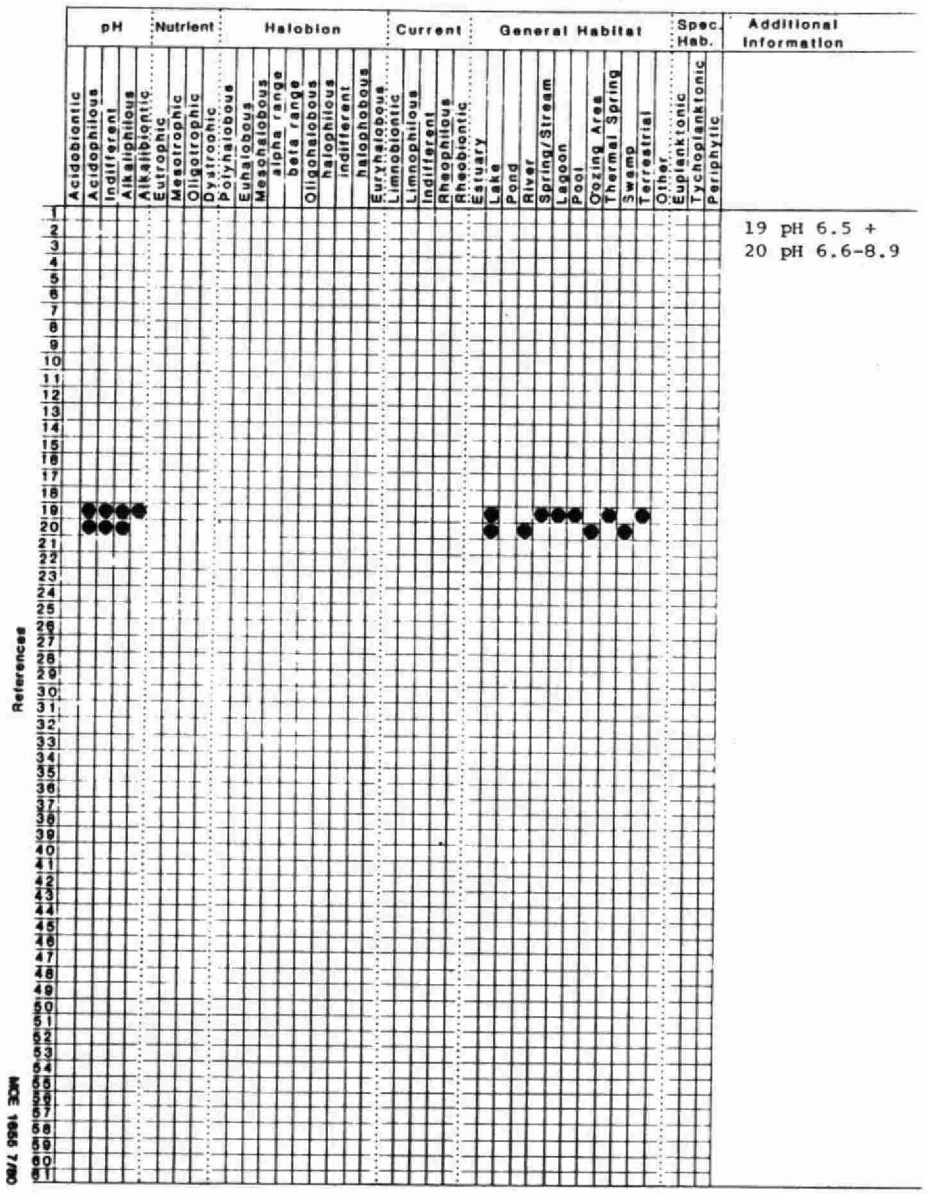
Taxon Nitzschia communis Rabh.

Synonym



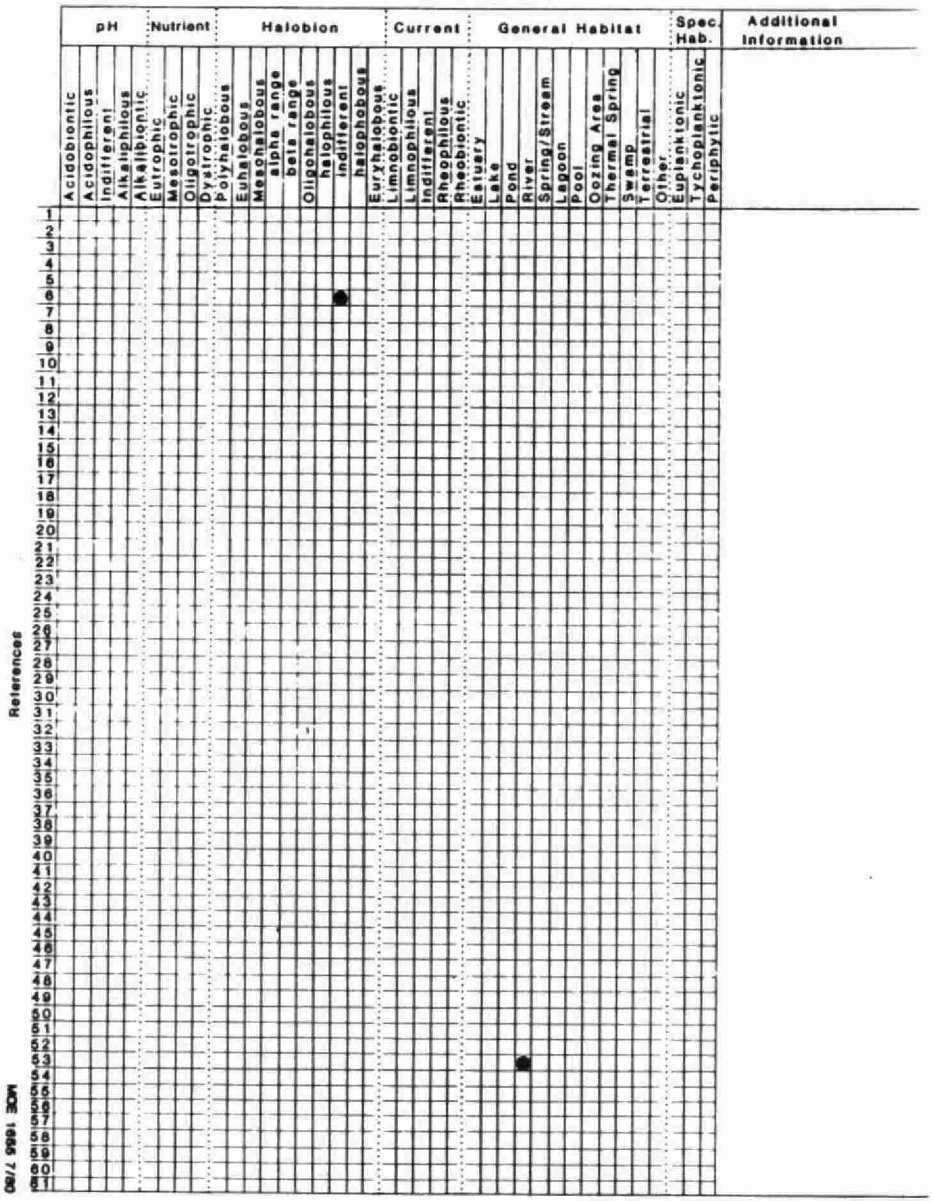
Taxon Nitzschia debilis (Arn.) A. Mayer

Synonym



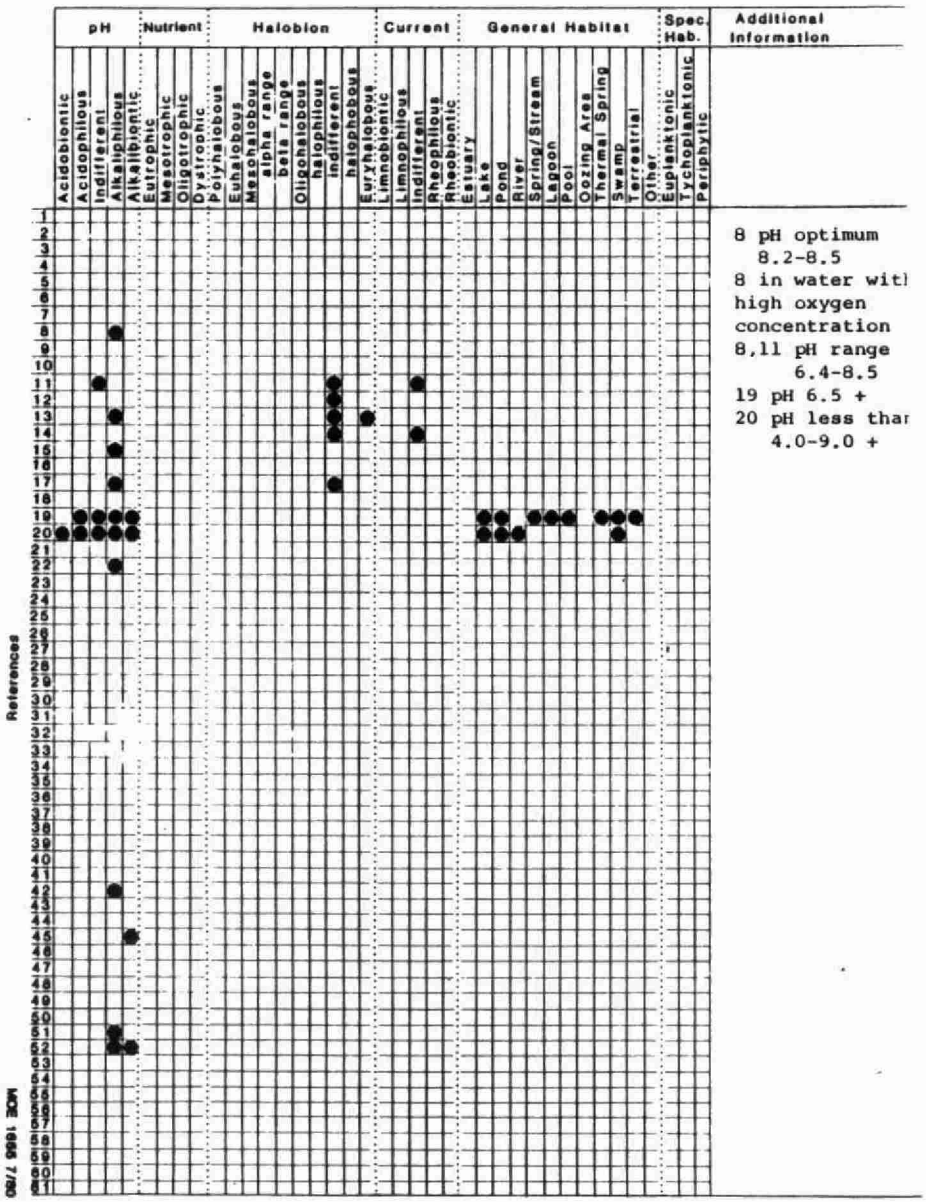
Taxon Nitzschia denticula var. curta Grun.

Synonym



Taxon Nitzschia denticula Grun. var. denticula

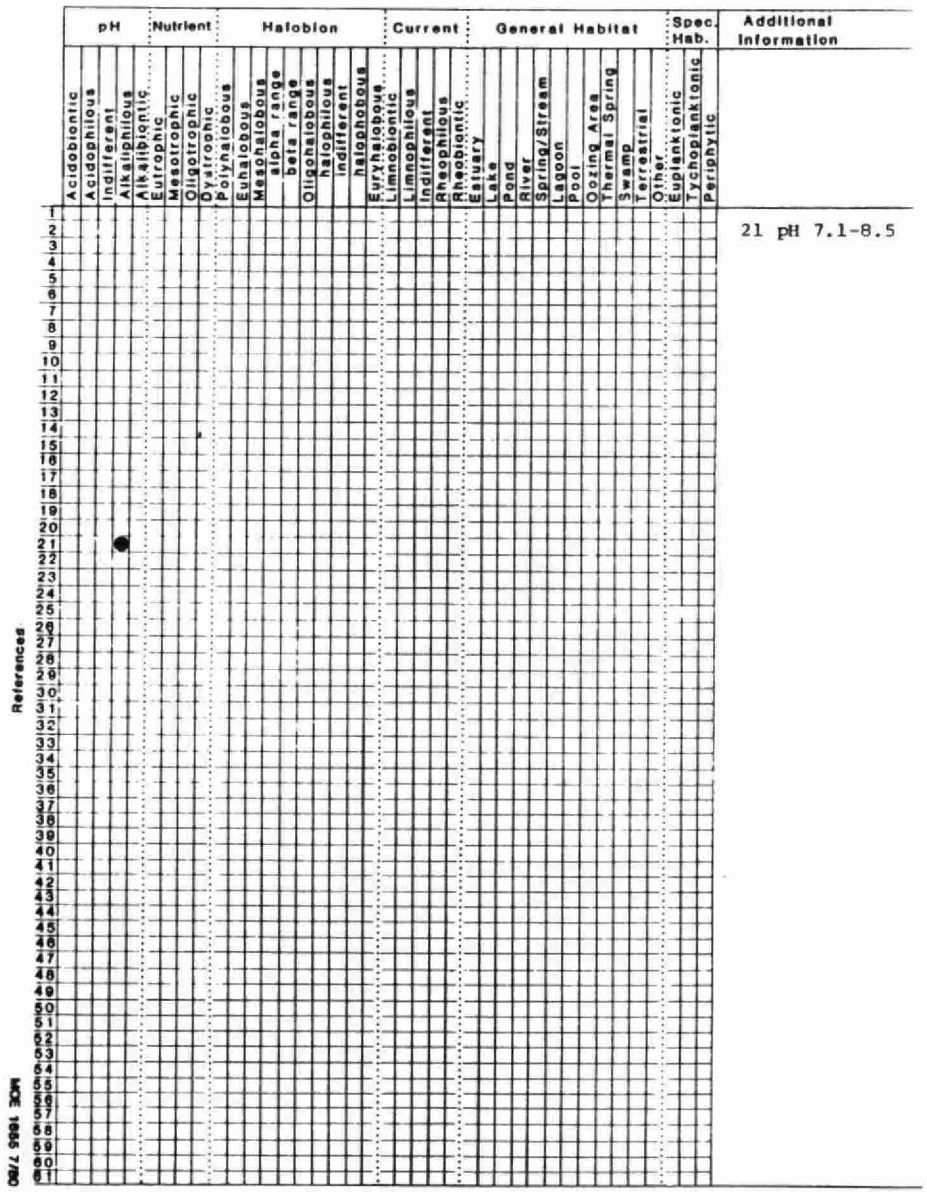
Synonym



8 pH optimum
8.2-8.5
8 in water with
high oxygen
concentration
8,11 pH range
6.4-8.5
19 pH 6.5 +
20 pH less than
4.0-9.0 +

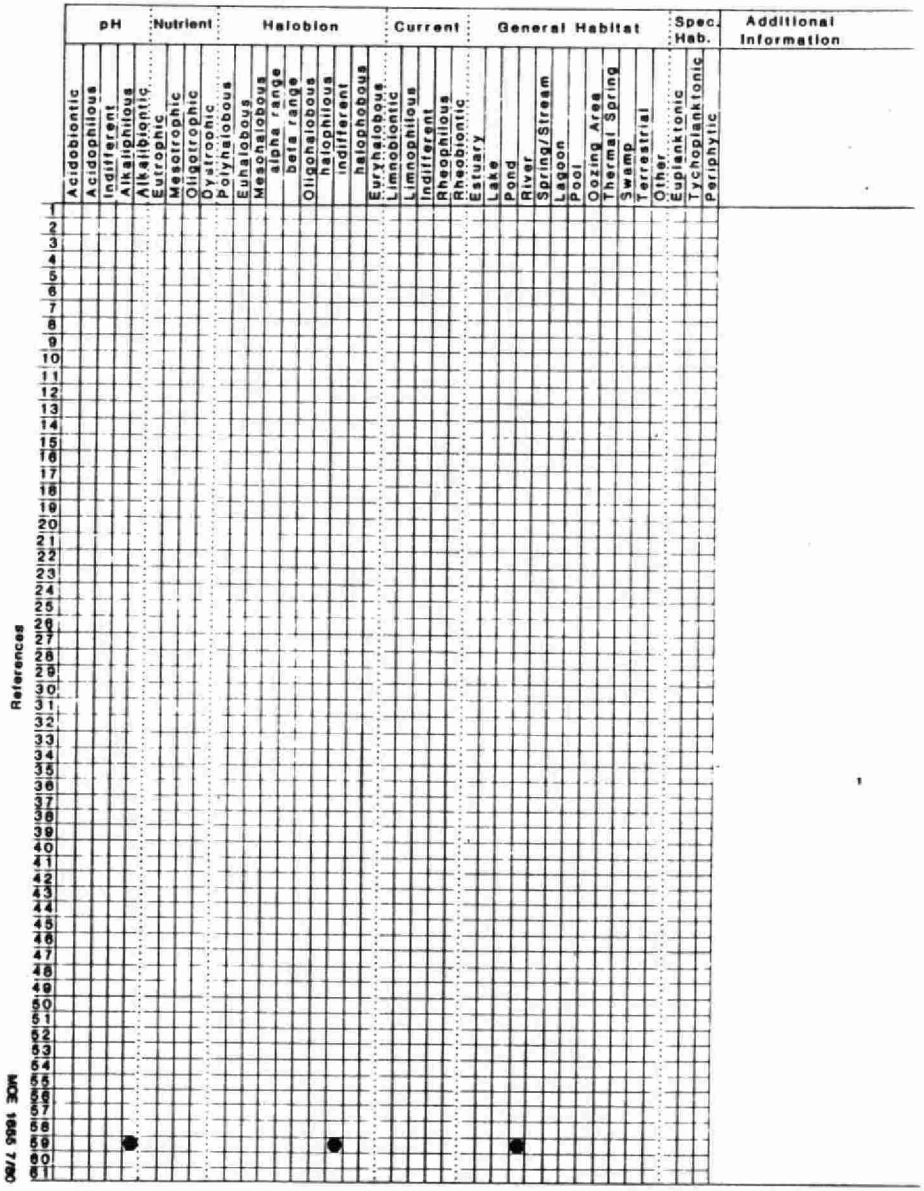
Taxon Nitzschia desertorum var. desertorum Hust.

Synonym



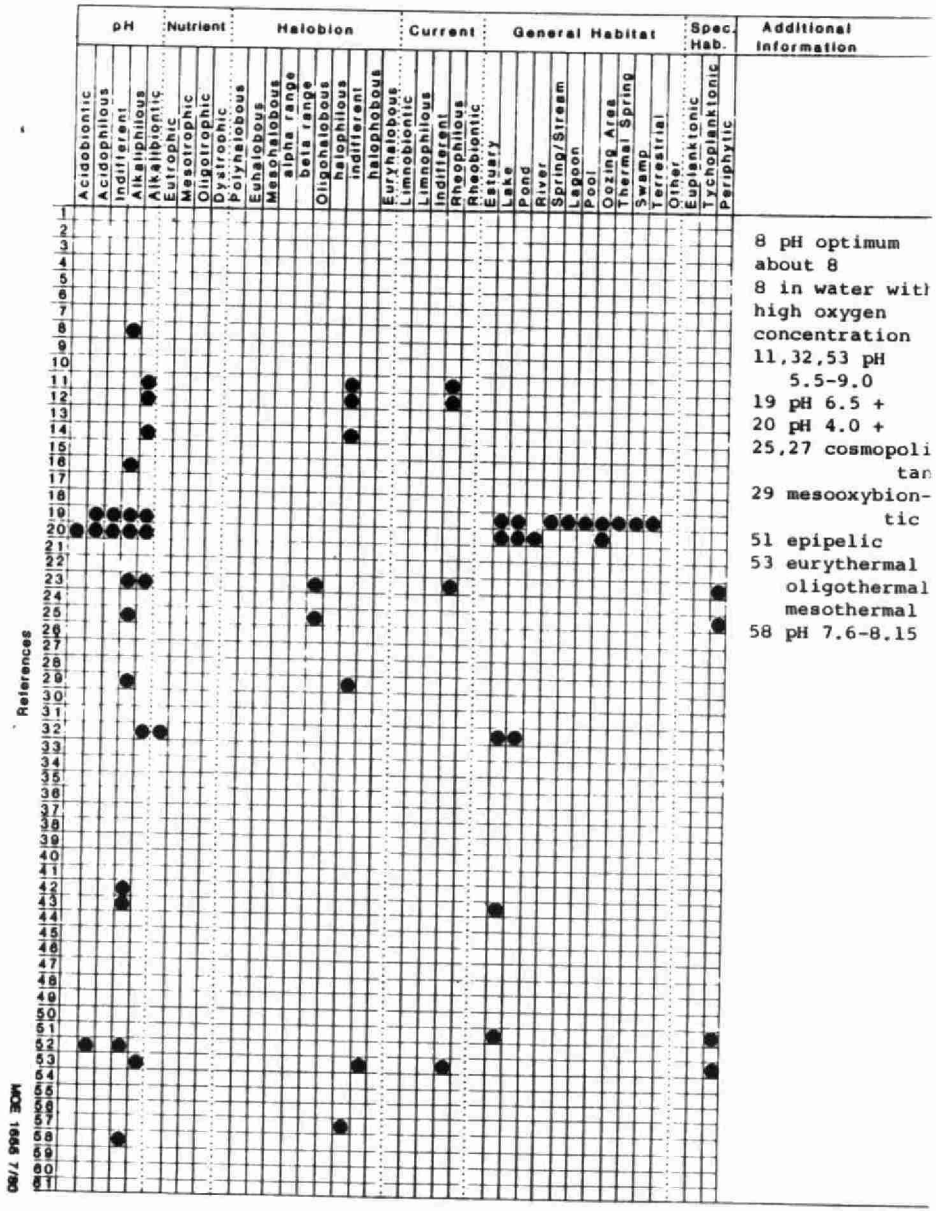
Taxon Nitzschia dissipata var. acuta (Hantzsch.)V. Heurck

Synonym



Taxon Nitzschia dissipata (Kutz.) Grun. var. dissipata

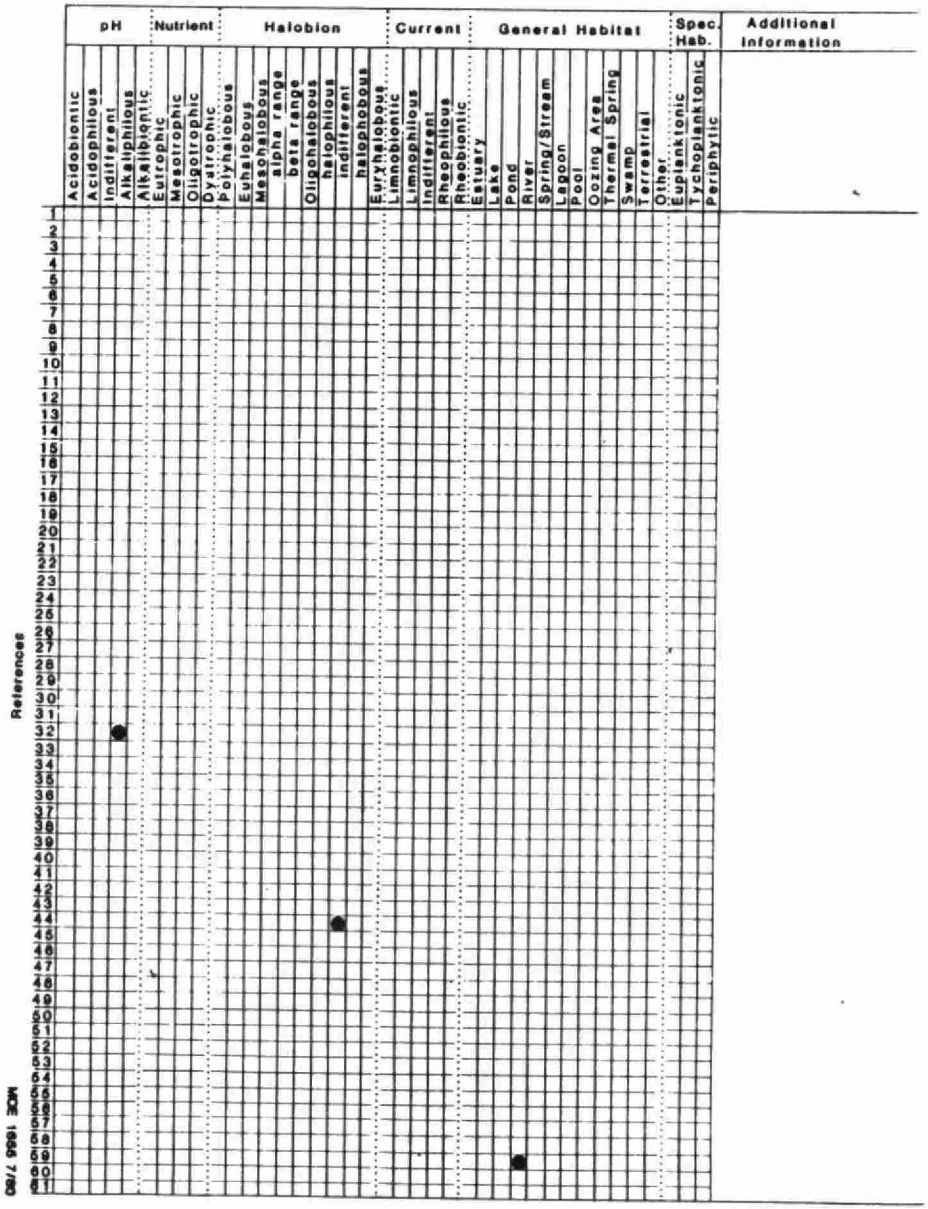
Synonym



8 pH optimum about 8
8 in water with high oxygen concentration
11,32,53 pH 5.5-9.0
19 pH 6.5 +
20 pH 4.0 +
25,27 cosmopolitan
29 mesooxybiontic
51 epipelic
53 eurythermal oligothermal mesothermal
58 pH 7.6-8.15

Taxon Nitzschia dissipata var. genuina (Kutz.) Grun.

Synonym



Taxon Nitzschia elliptica Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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8 often found carbonate or sulphate rich water
can withstand oxygen depleted water

MOE 1885 7/80

Taxon Nitzschia filiformis (W. Sm.) Hust.

Synonym

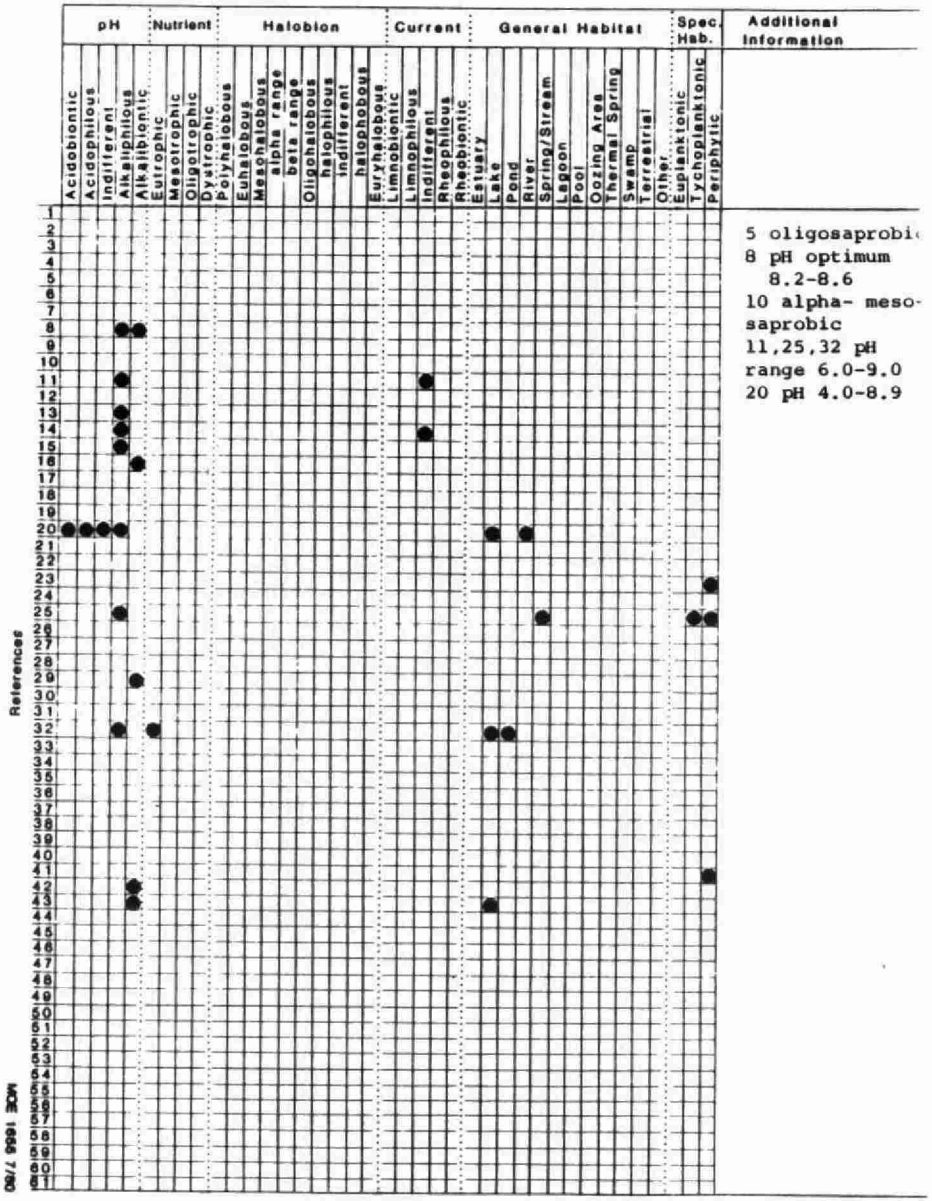
References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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8 not fully autotrophic
21 pH 4.2-7.5
27 probably cosmopolitan
29 saprophilic
29 euryoxybiontic

MOE 1885 7/80

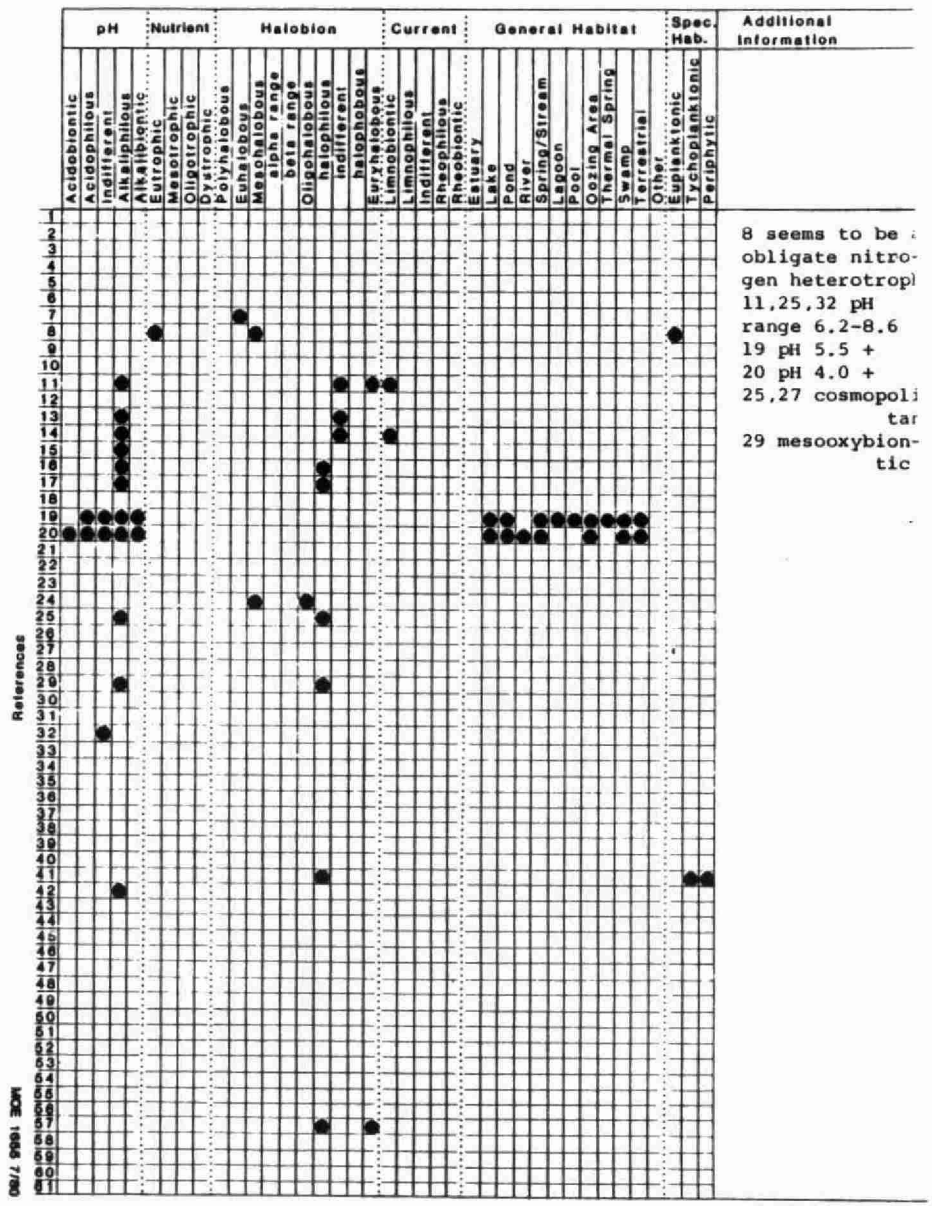
Taxon Nitzschia fonticola Grun.

Synonym



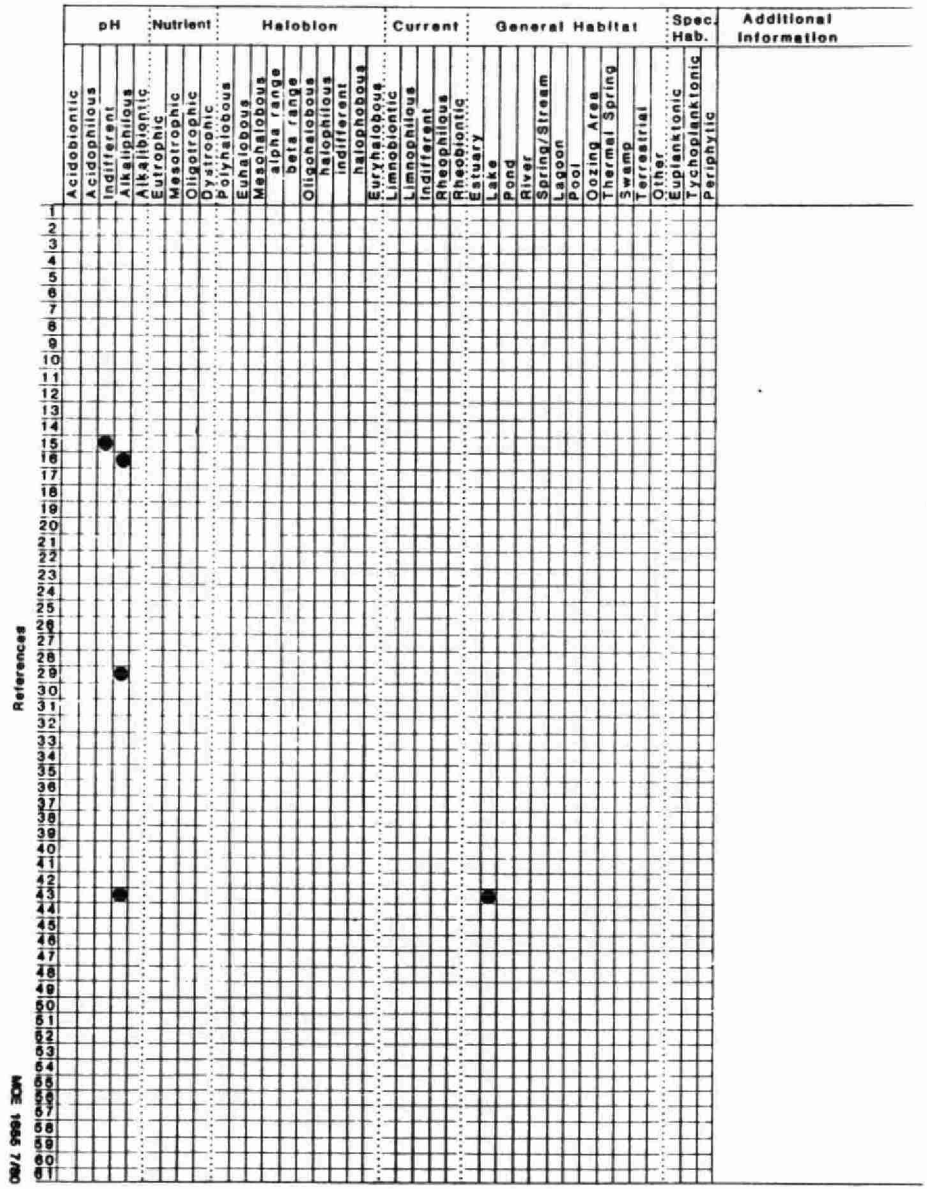
Taxon Nitzschia frustulum (Kutz.) Grun. var. frustulum

Synonym



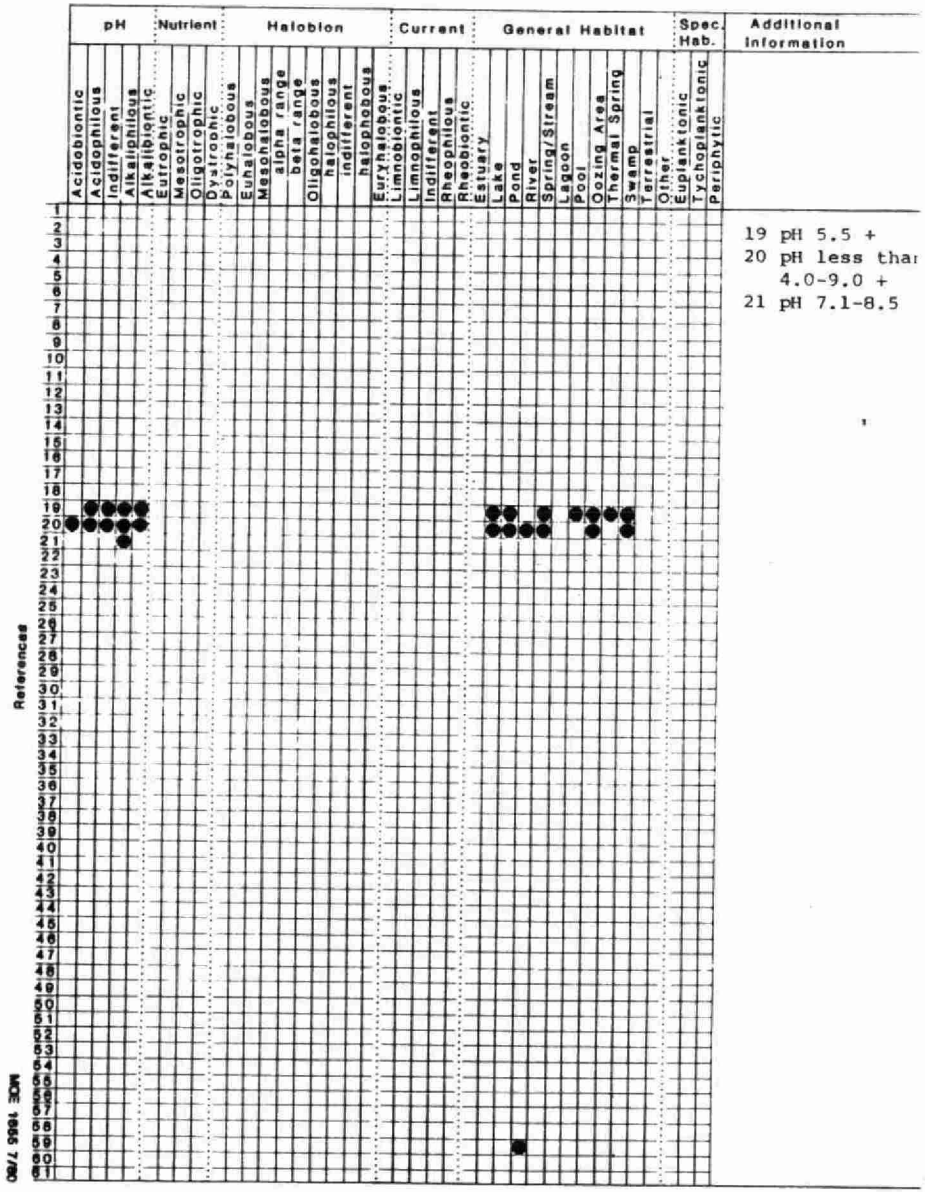
Taxon Nitzschia frustulum var. perminuta Grun.

Synonym



Taxon Nitzschia frustulum var. perpusilla (Rabh.) Grun.

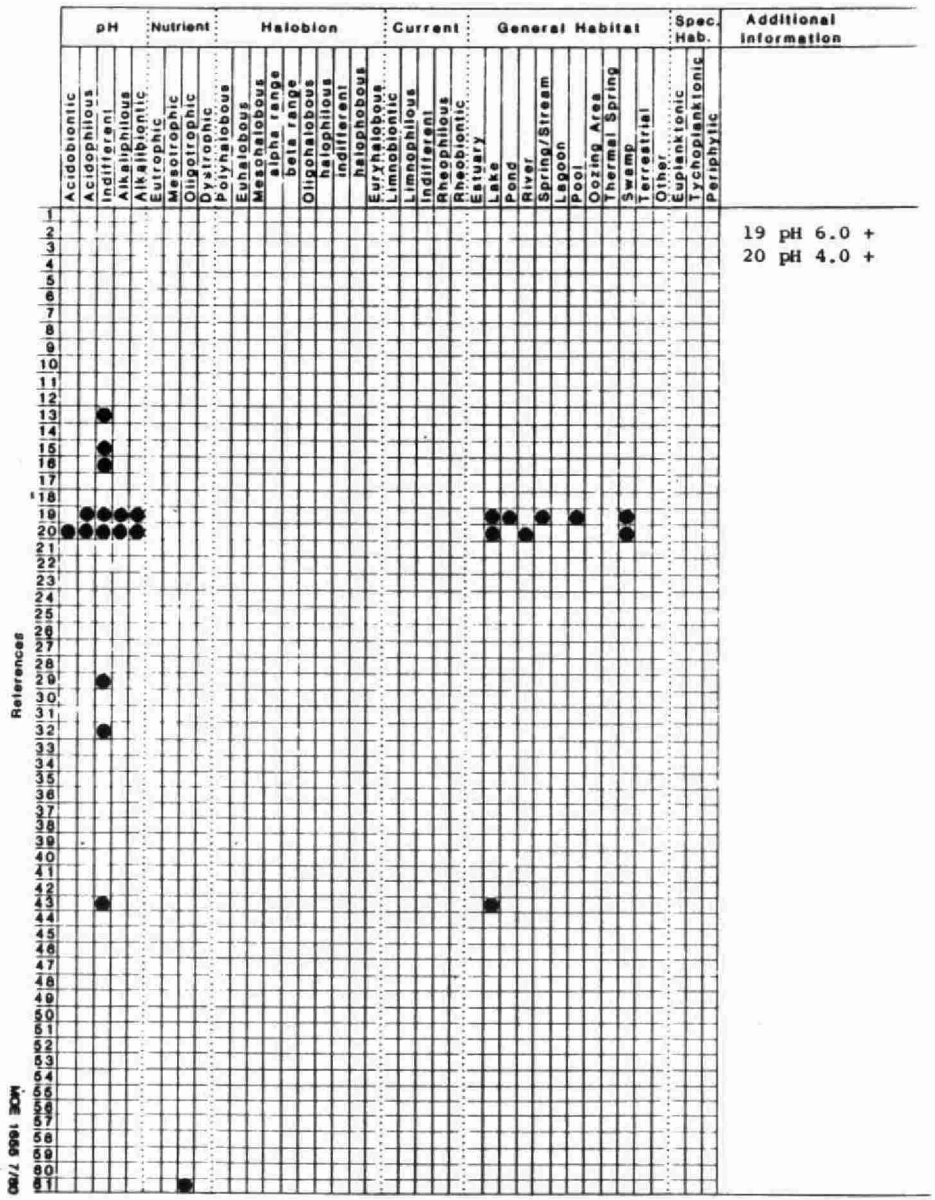
Synonym



19 pH 5.5 +
20 pH less thar
4.0-9.0 +
21 pH 7.1-8.5

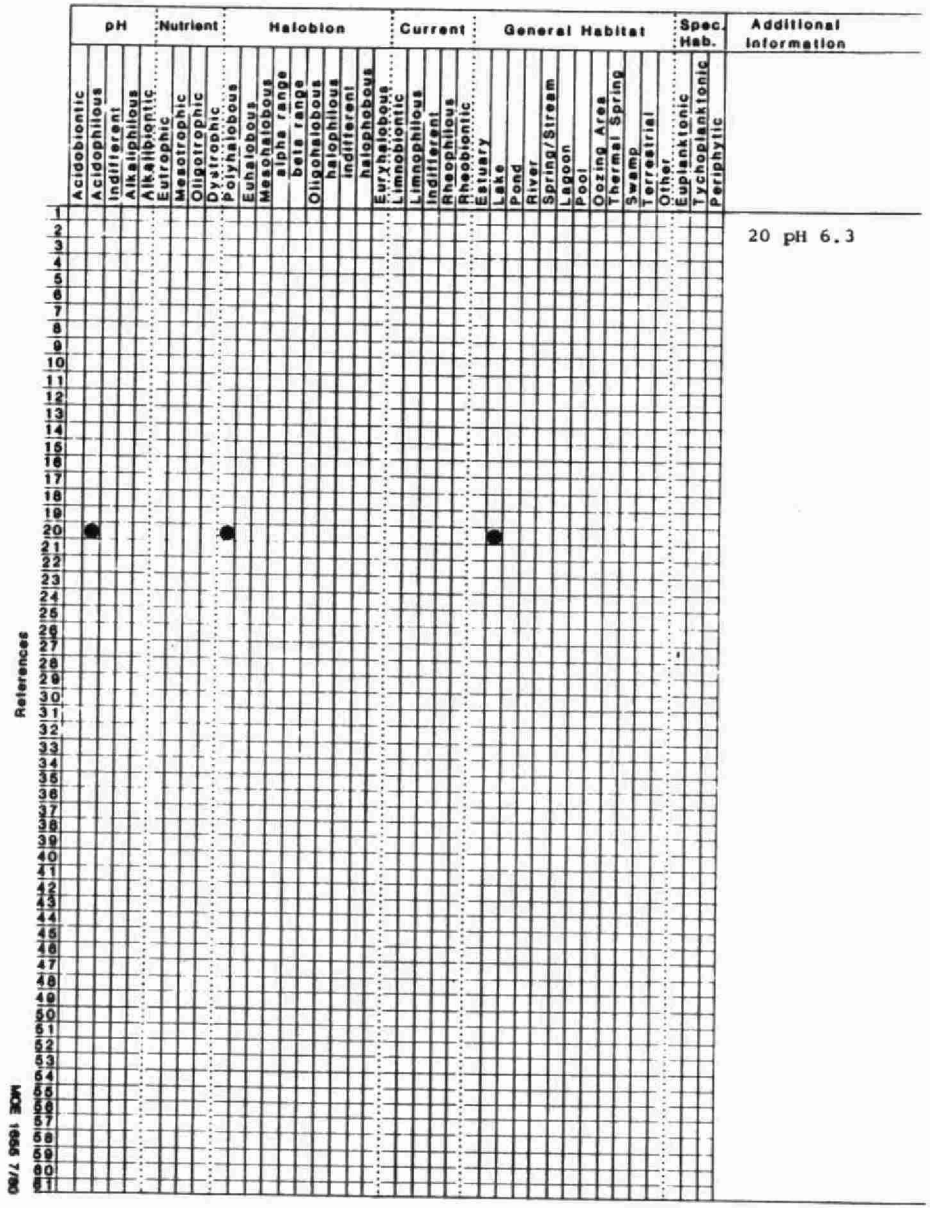
Taxon Nitzschia gracilis Hantzsch.

Synonym



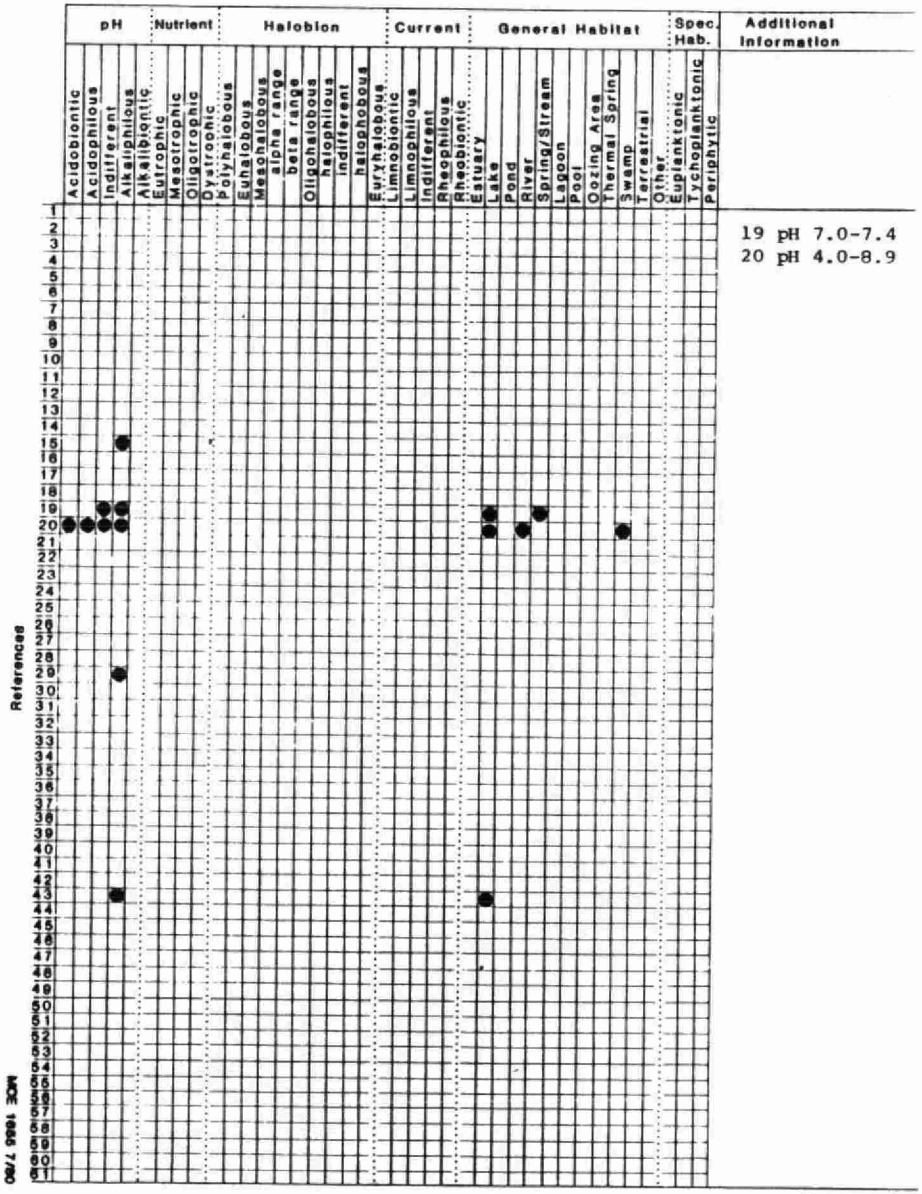
Taxon Nitzschia granulata Grun

Synonym



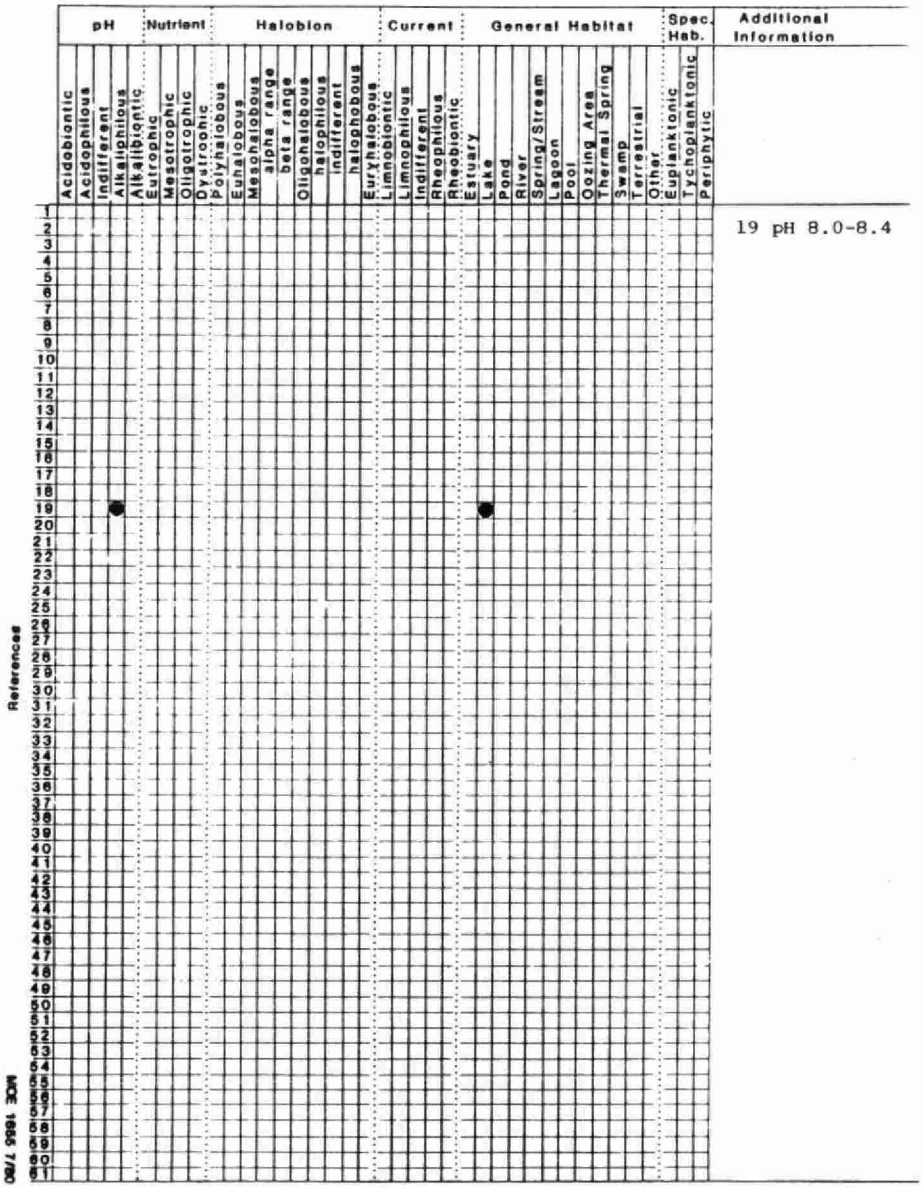
Taxon Nitzschia hantzschiana Rabh.

Synonym



Taxon Nitzschia heidenii var. pamirensis Peter.

Synonym



Taxon Nitzschia heufleuriana var. genuina Cl.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Taxon Nitzschia hiemalis Hust.

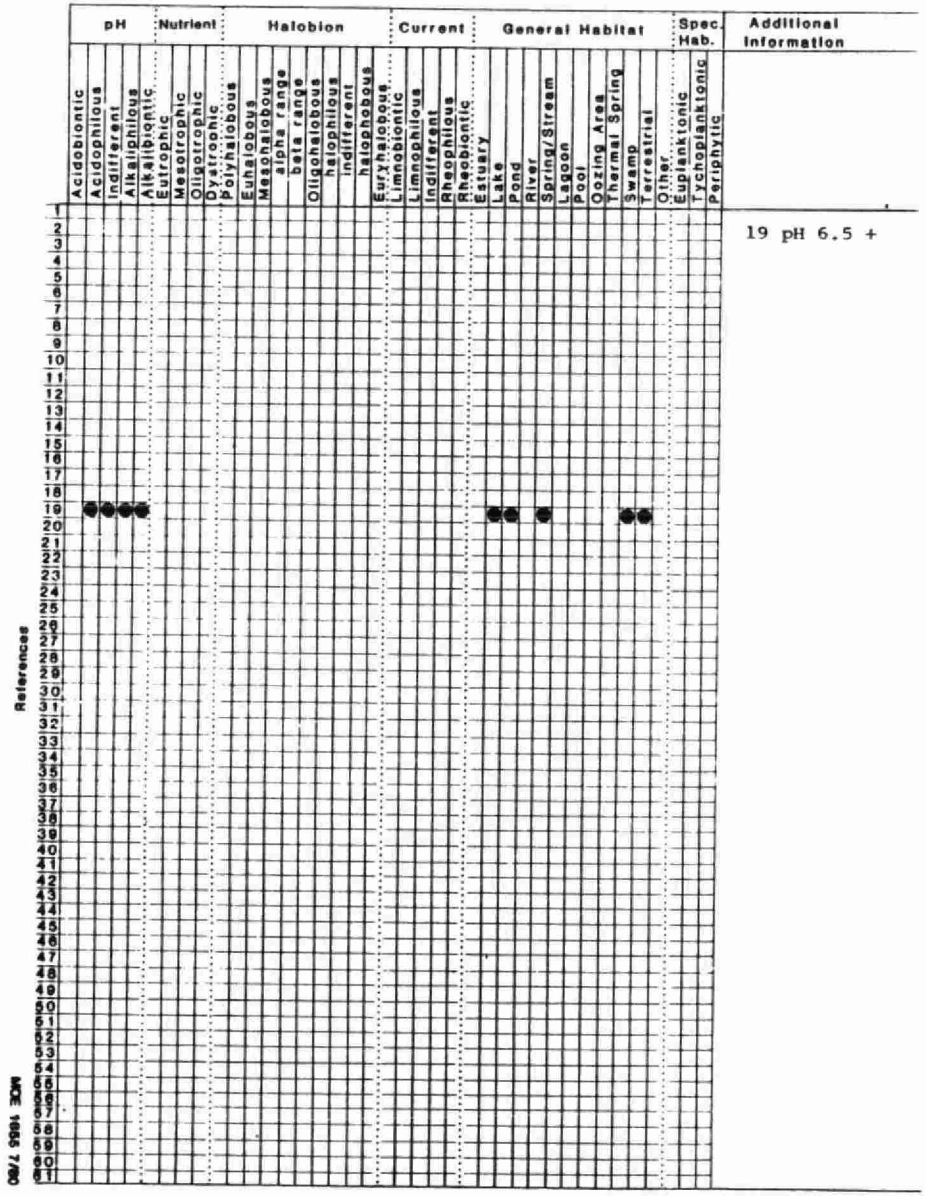
Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Current: Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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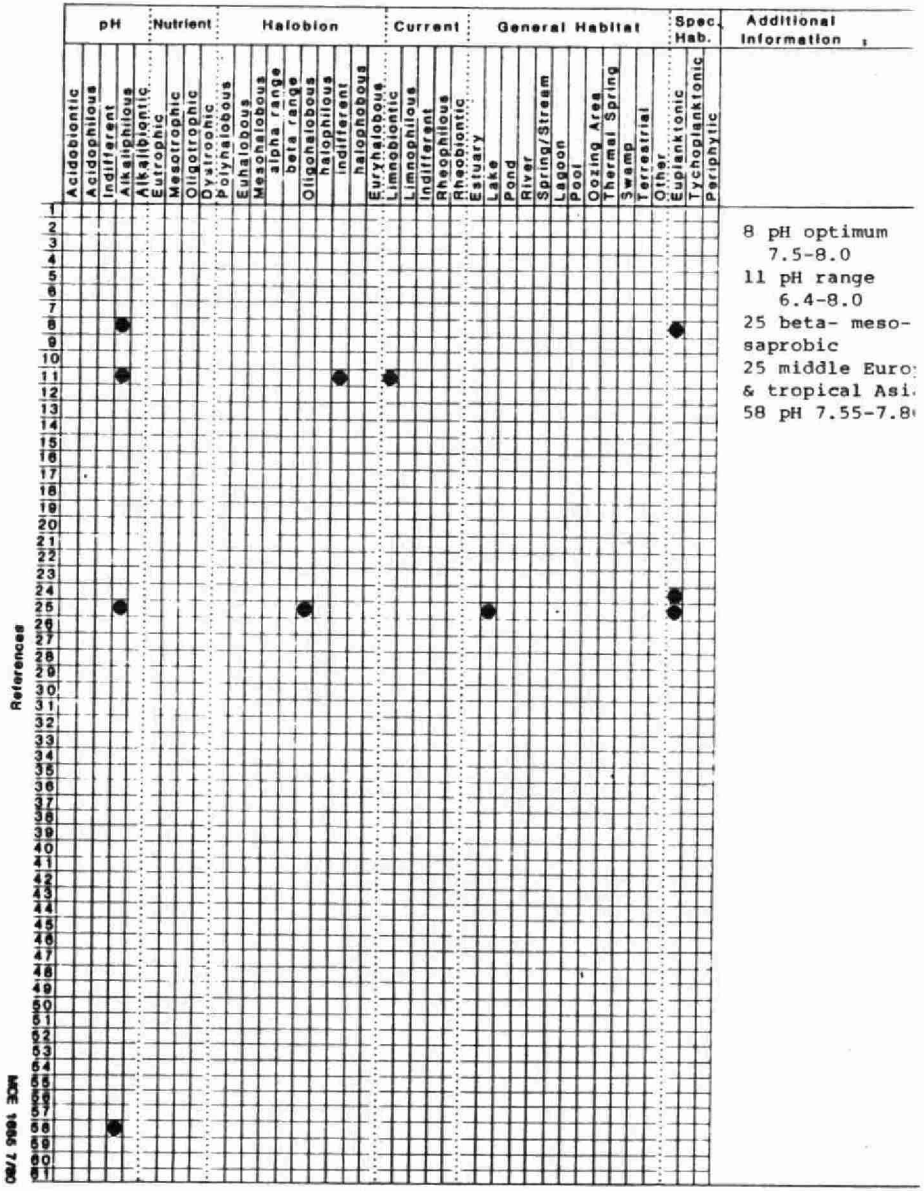
Taxon Nitzschia hollerupensis Foged

Synonym



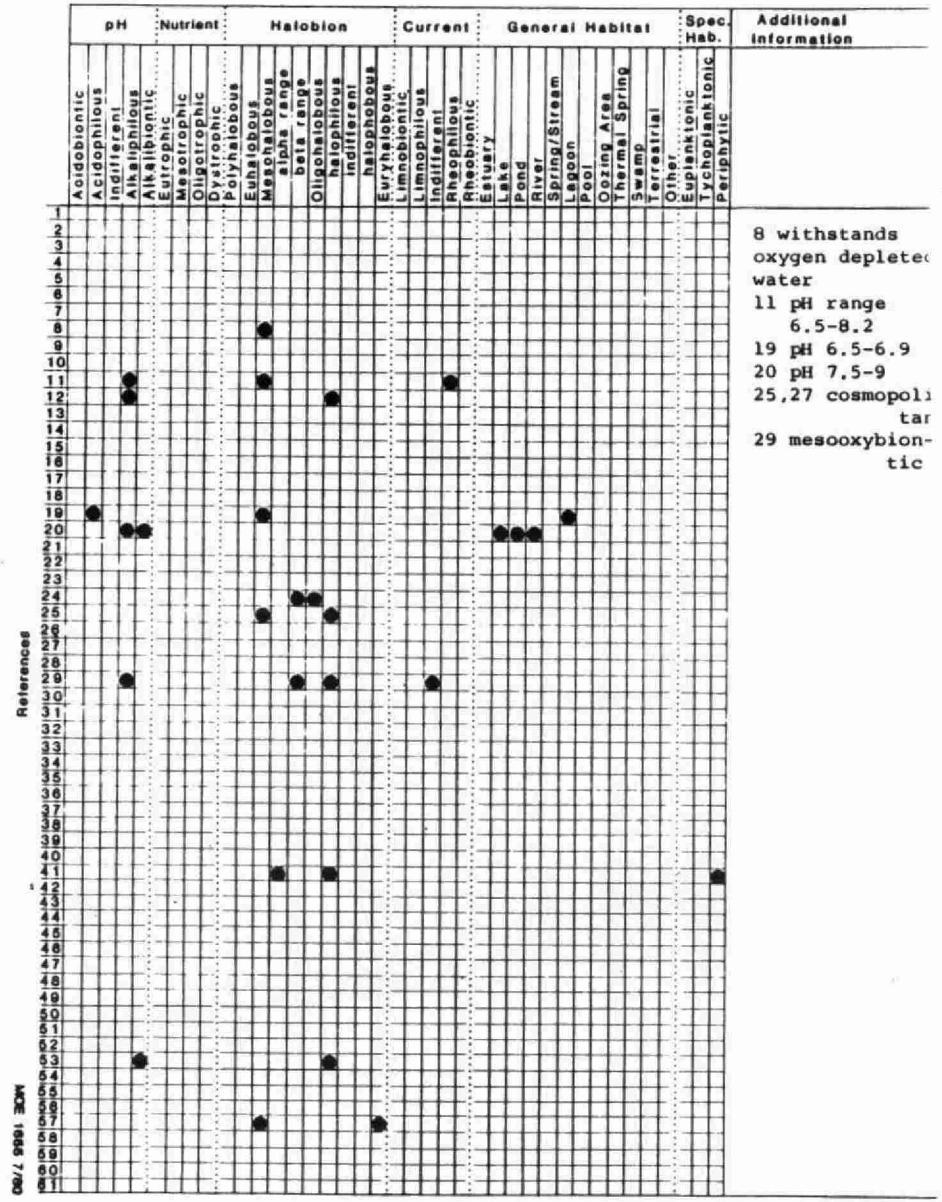
Taxon Nitzschia holsatica Hust.

Synonym



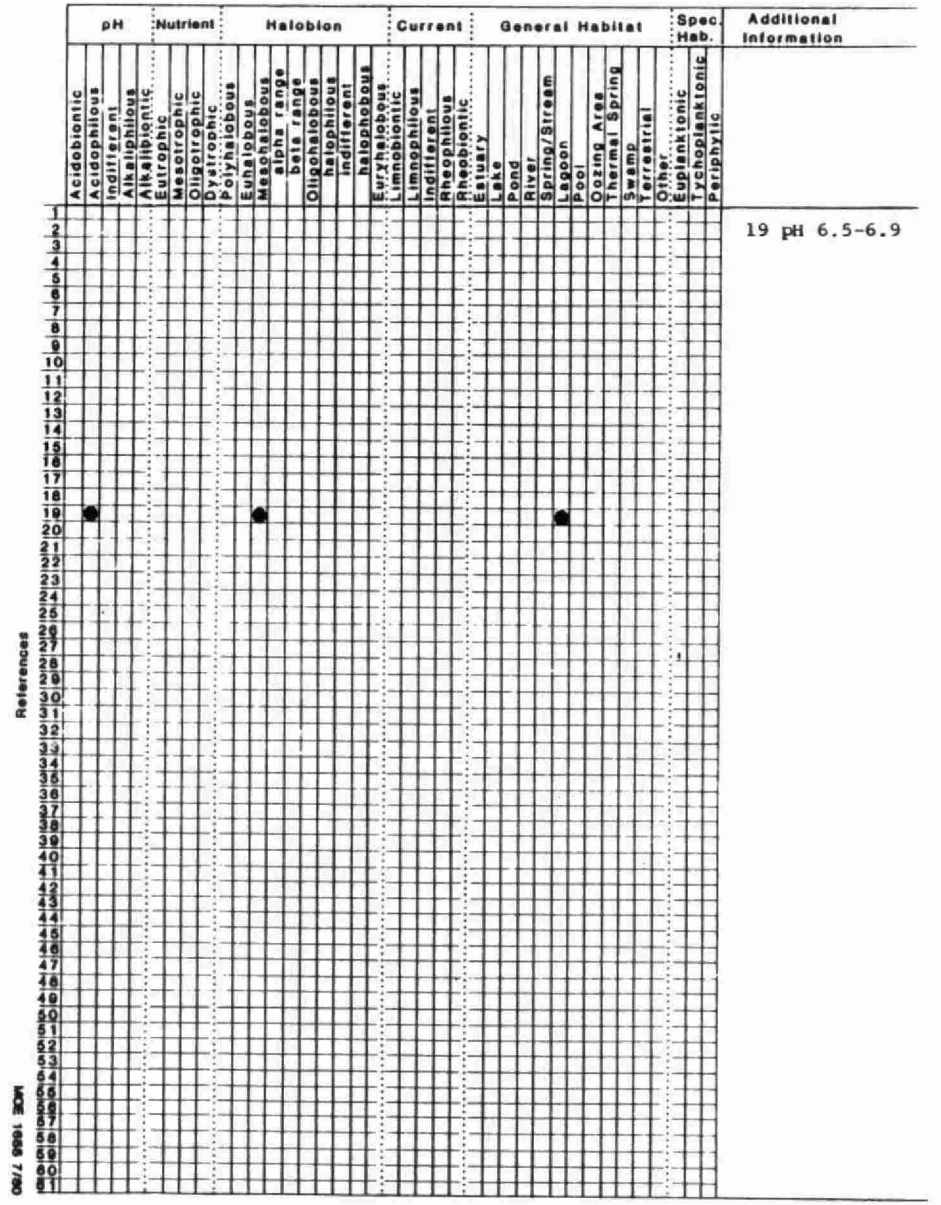
Taxon Nitzschia hungarica Grun.

Synonym



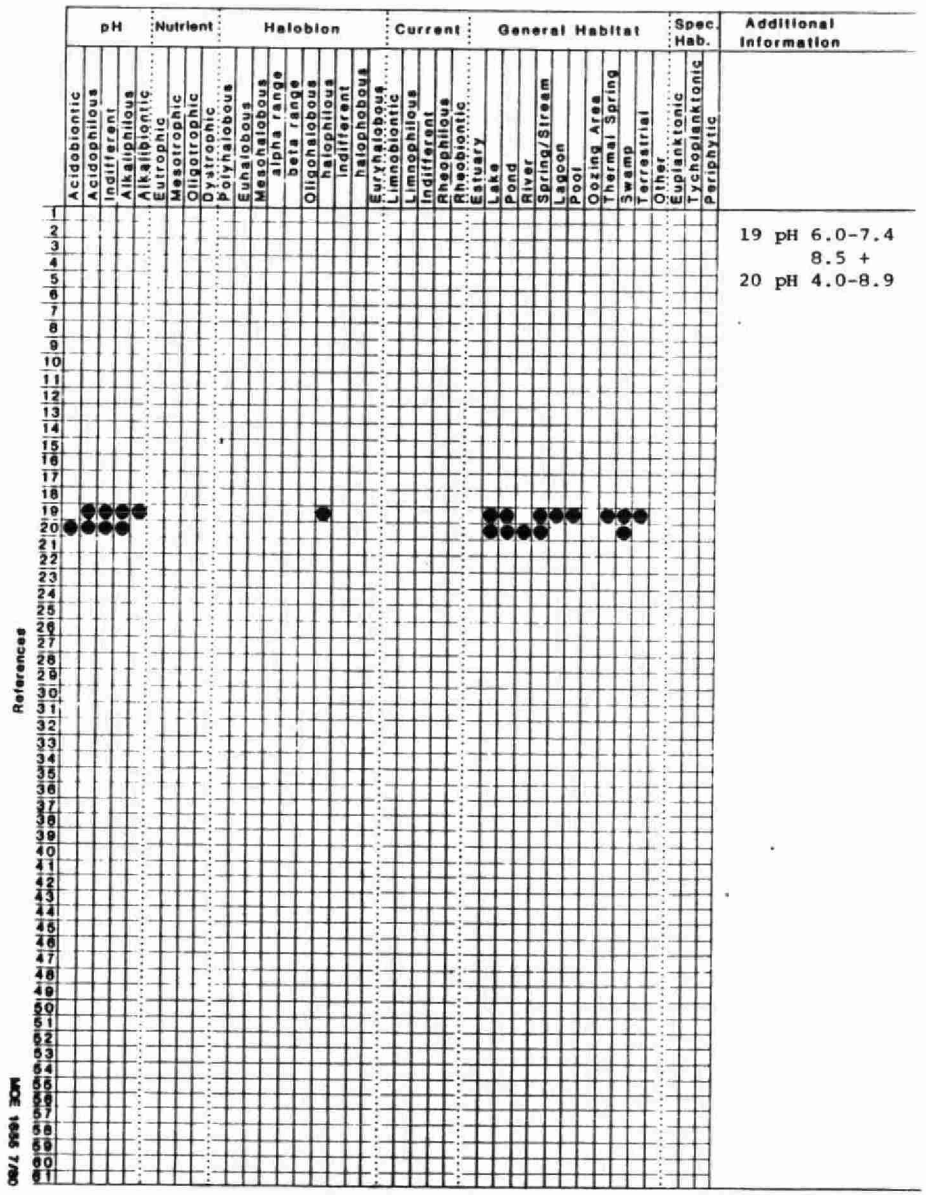
Taxon Nitzschia hybrida Grun.

Synonym



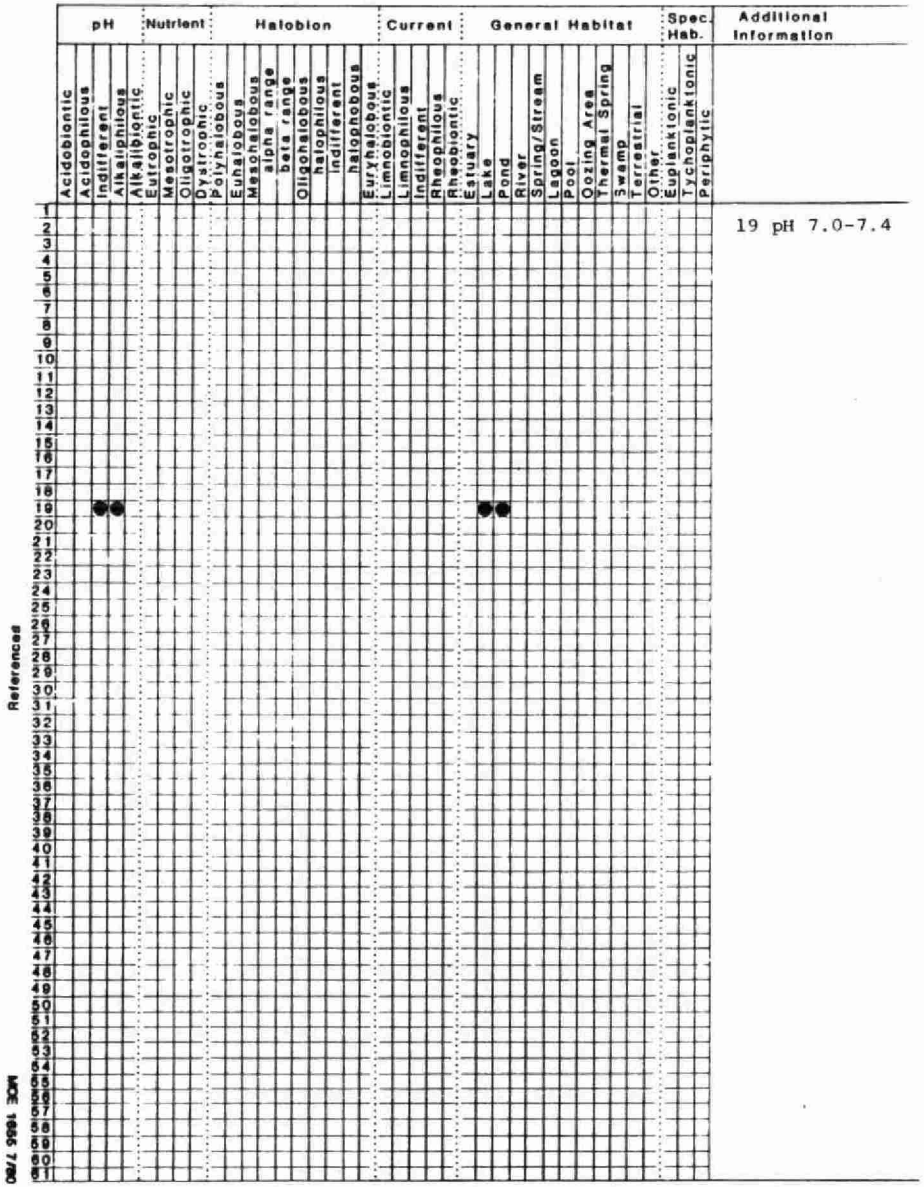
Taxon Nitzschia ignorata Krasske

Synonym



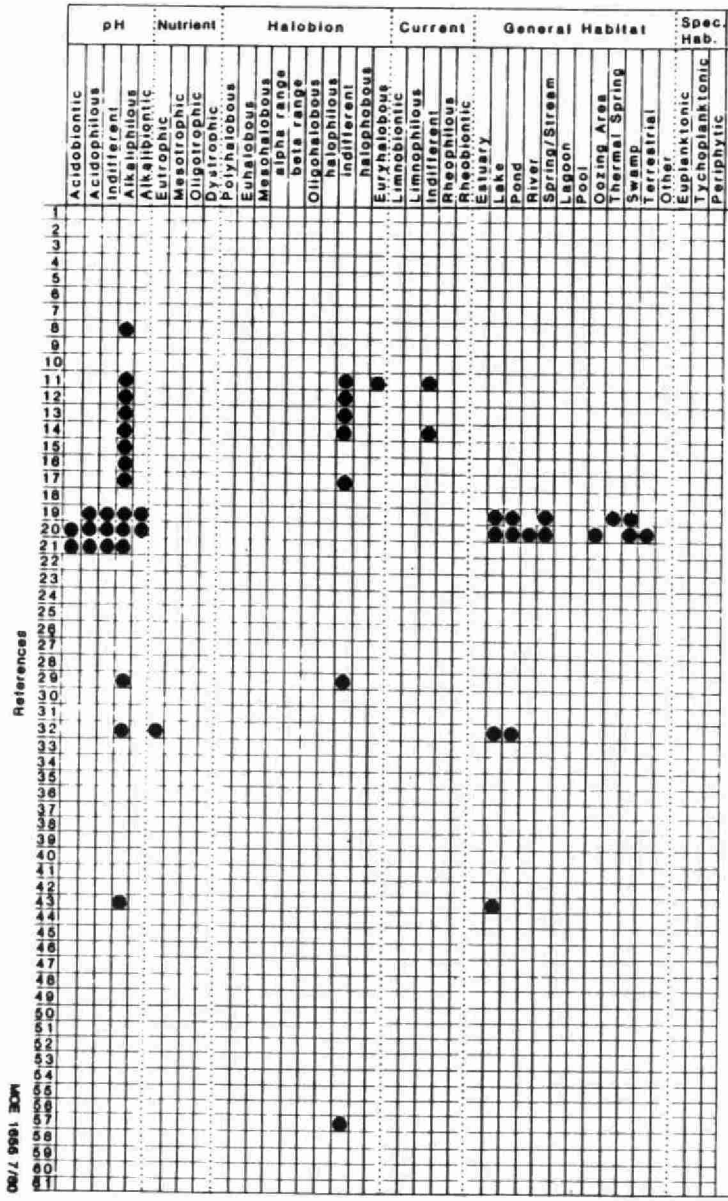
Taxon Nitzschia intermedia Hantzsch.

Synonym



Taxon Nitzschia kutzingiana Hilse

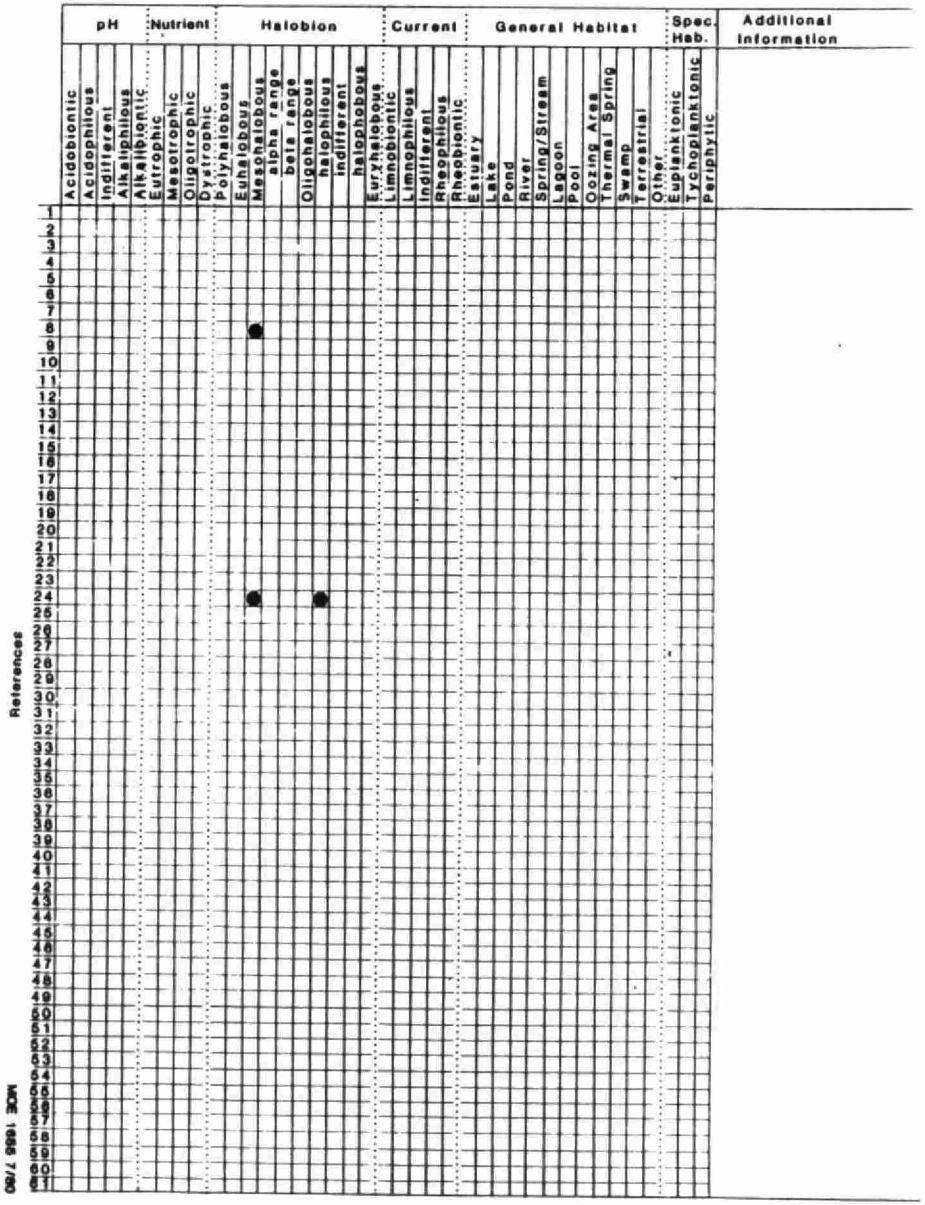
Synonym



8 pH optimum 7.5-7.8
11,32 pH range 6.4-8.4
19 pH 5.5-8.4
9.0 +
20 pH 4.0 +
21 pH 4.2-7.5
29 mesooxybiontic

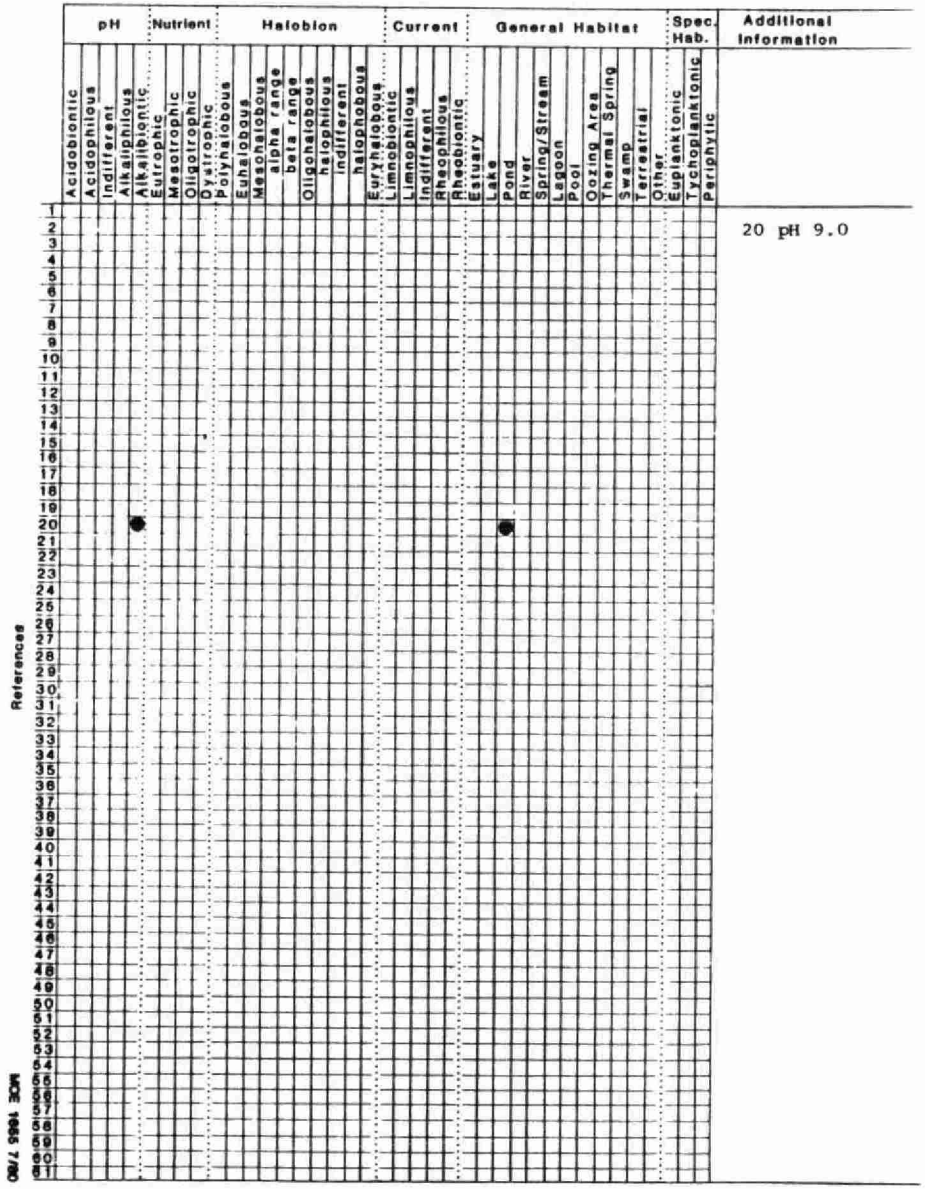
Taxon Nitzschia lacunarum Hust.

Synonym



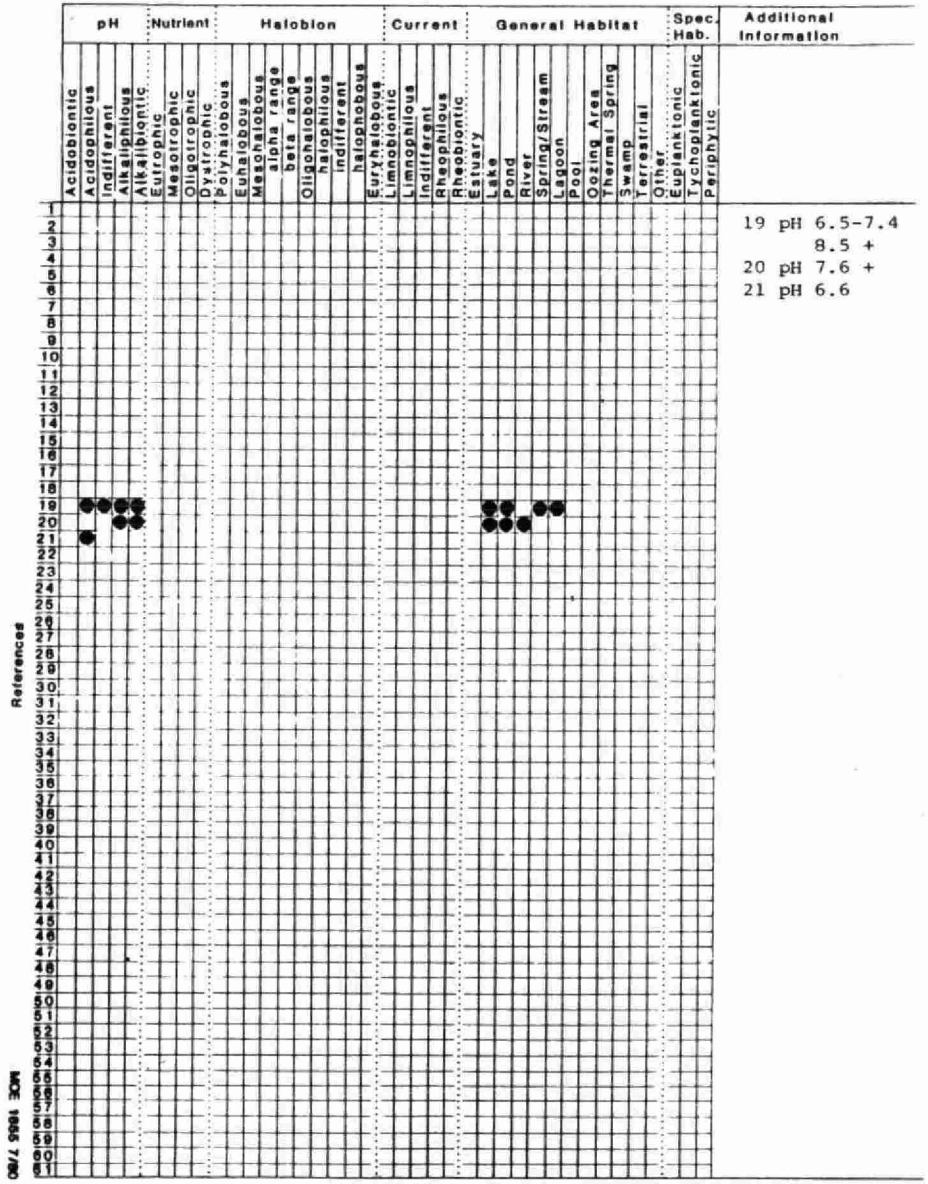
Taxon Nitzschia lauenburgiana Hust.

Synonym



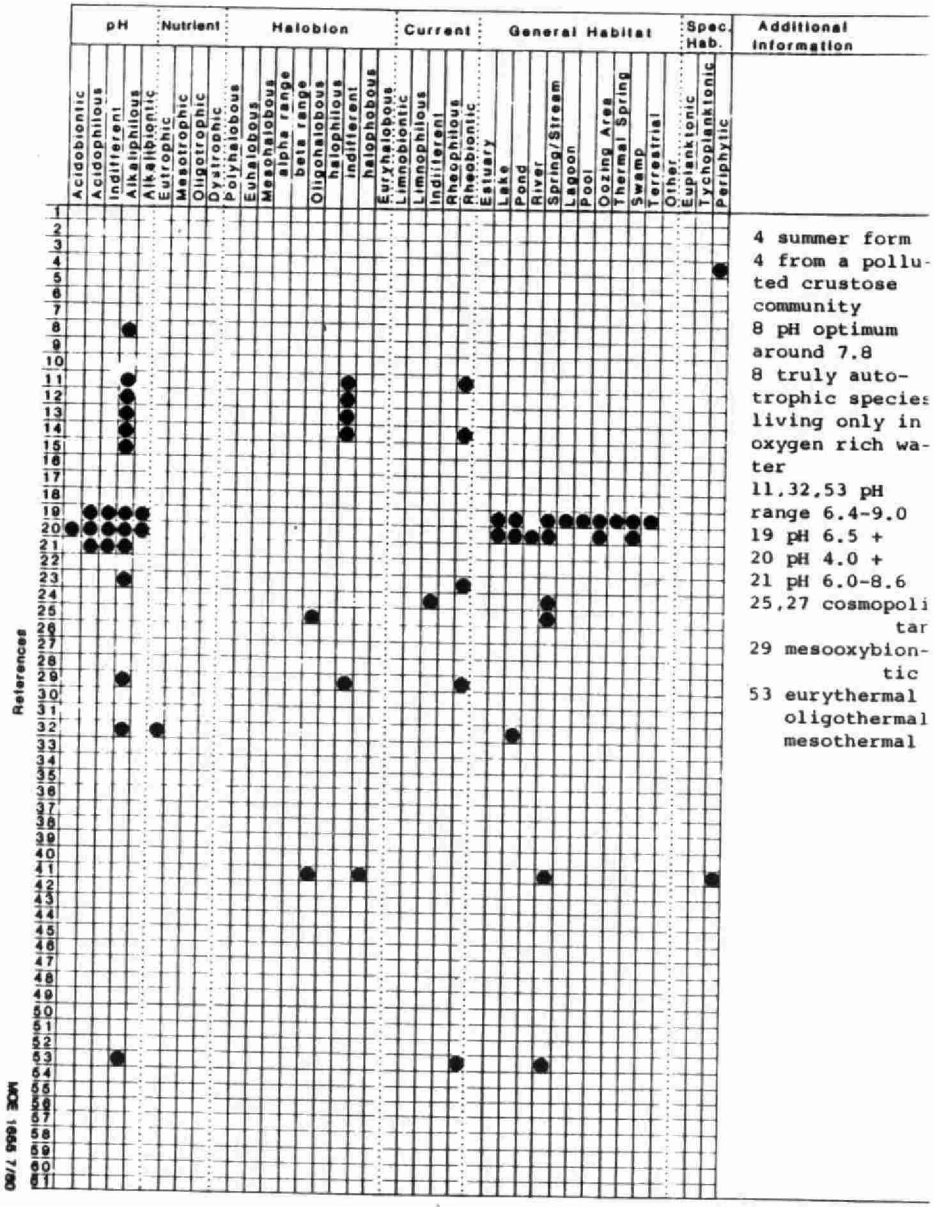
Taxon Nitzschia levidensis (W. Sm.) Grun.

Synonym



Taxon Nitzschia linearis W. Sm.

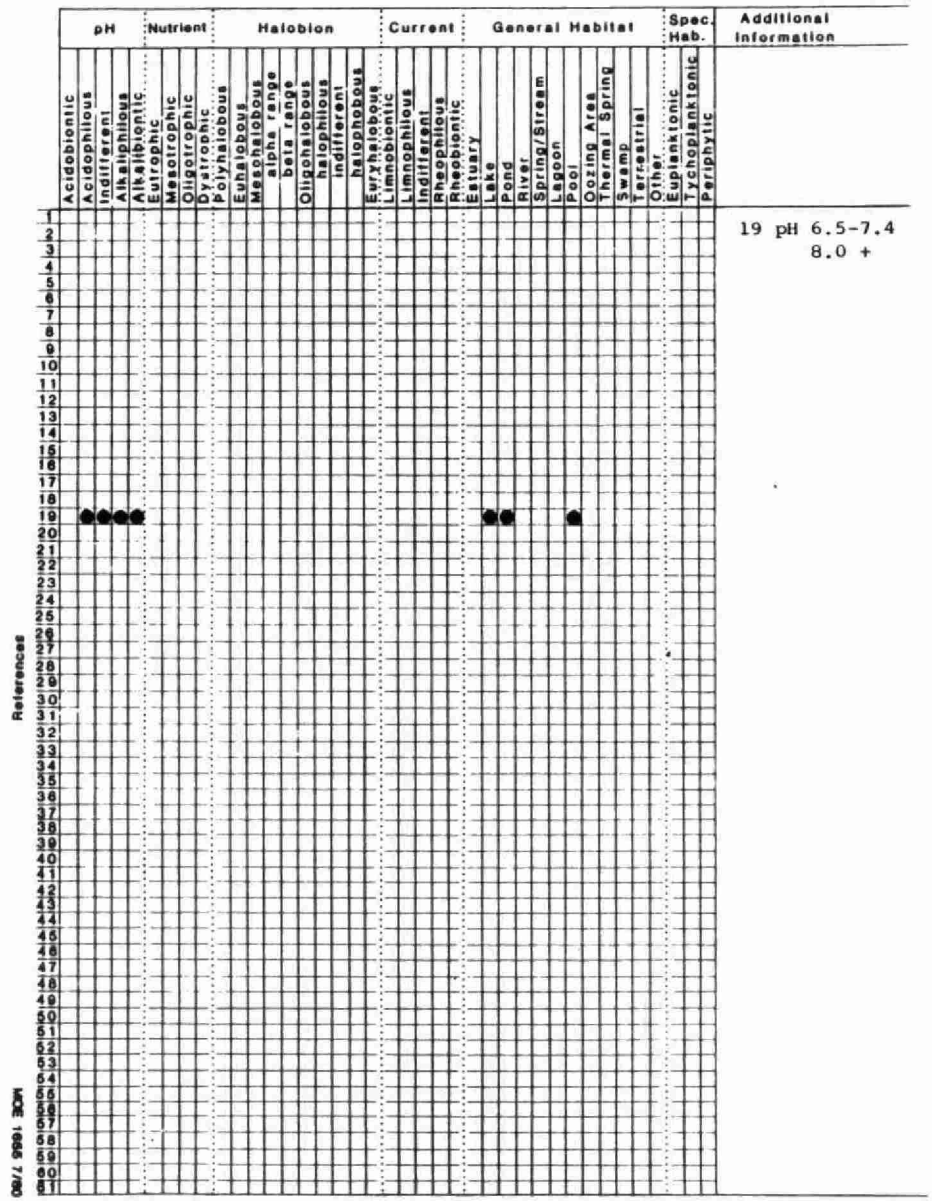
Synonym



4 summer form
4 from a polluted crustose community
8 pH optimum around 7.8
8 truly autotrophic species living only in oxygen rich water
11,32,53 pH range 6.4-9.0
19 pH 6.5 +
20 pH 4.0 +
21 pH 6.0-8.6
25,27 cosmopolitar
29 mesooxybiontic
53 eurythermal oligothermal mesothermal

Taxon Nitzschia mahihaensis Foged

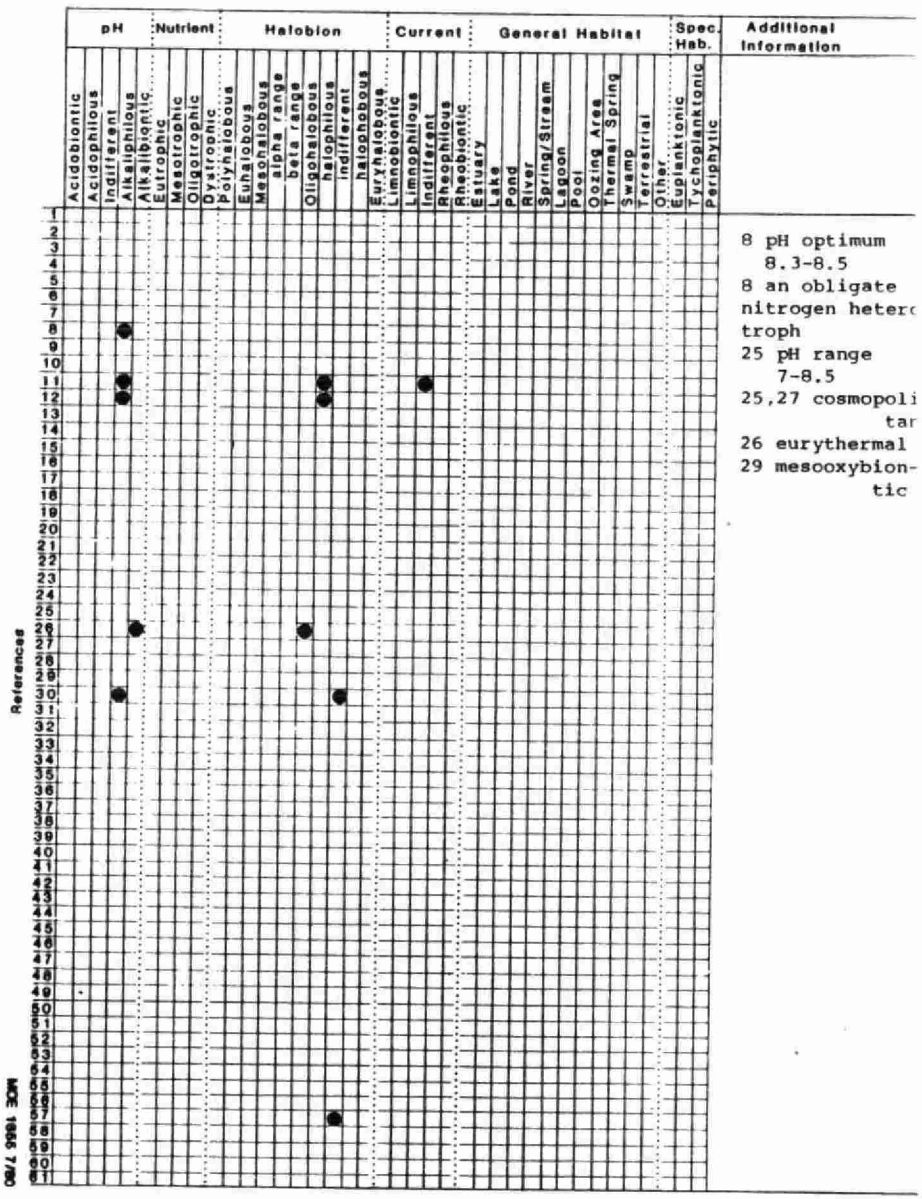
Synonym



19 pH 6.5-7.4
8.0 +

Taxon Nitzschia microcephala Grun.

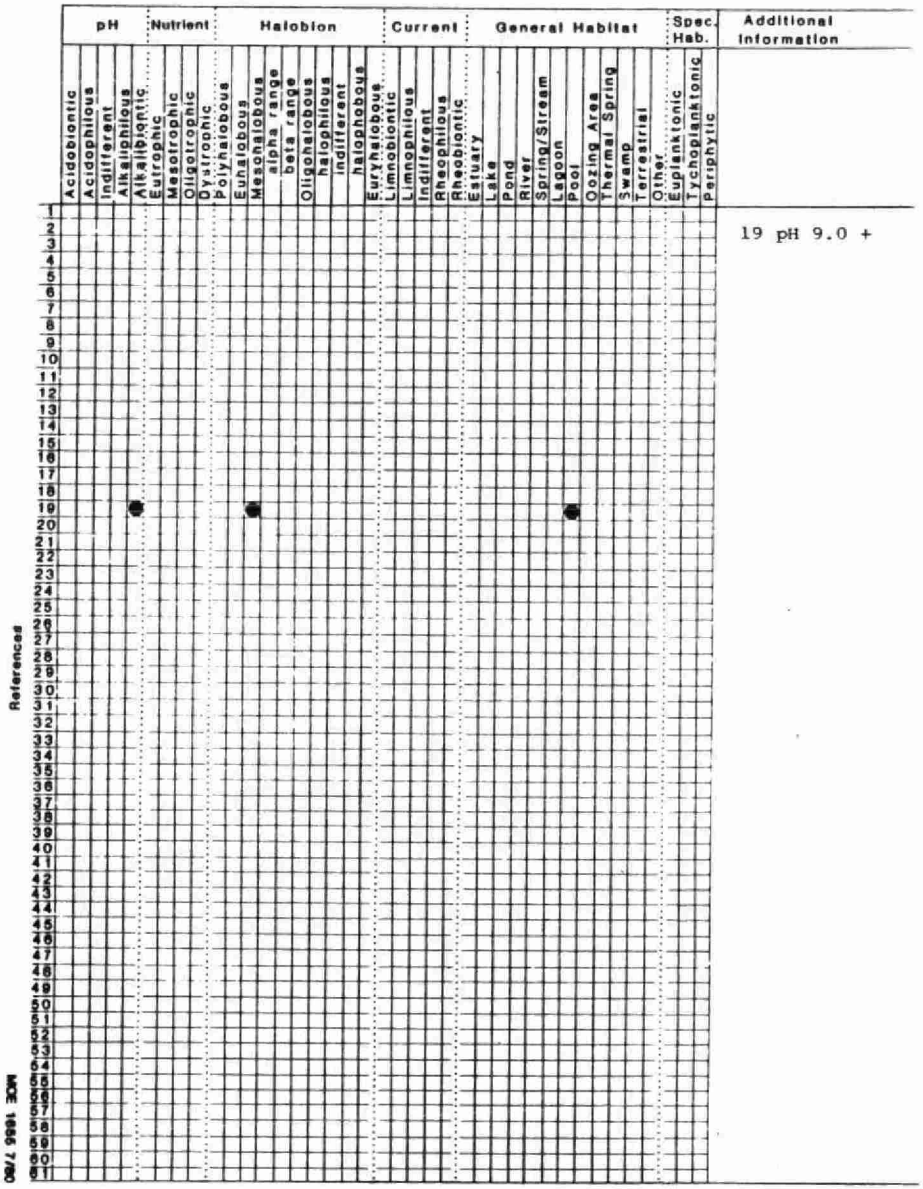
Synonym



8 pH optimum 8.3-8.5
8 an obligate nitrogen heterc troph
25 pH range 7-8.5
25,27 cosmopoli tar
26 eurythermal
29 mesooxybion- tic

Taxon Nitzschia obtusa W. Sm.

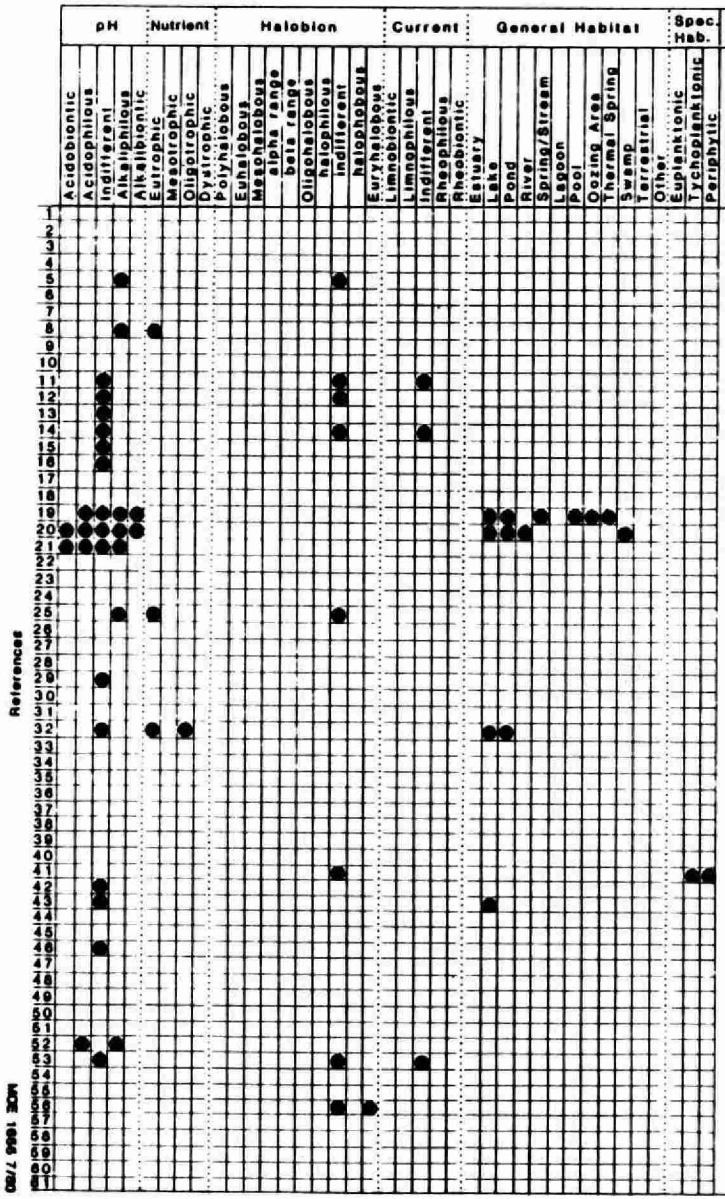
Synonym



19 pH 9.0 +

Taxon Nitzschia palea (Kutz.) W. Sm. var. palea

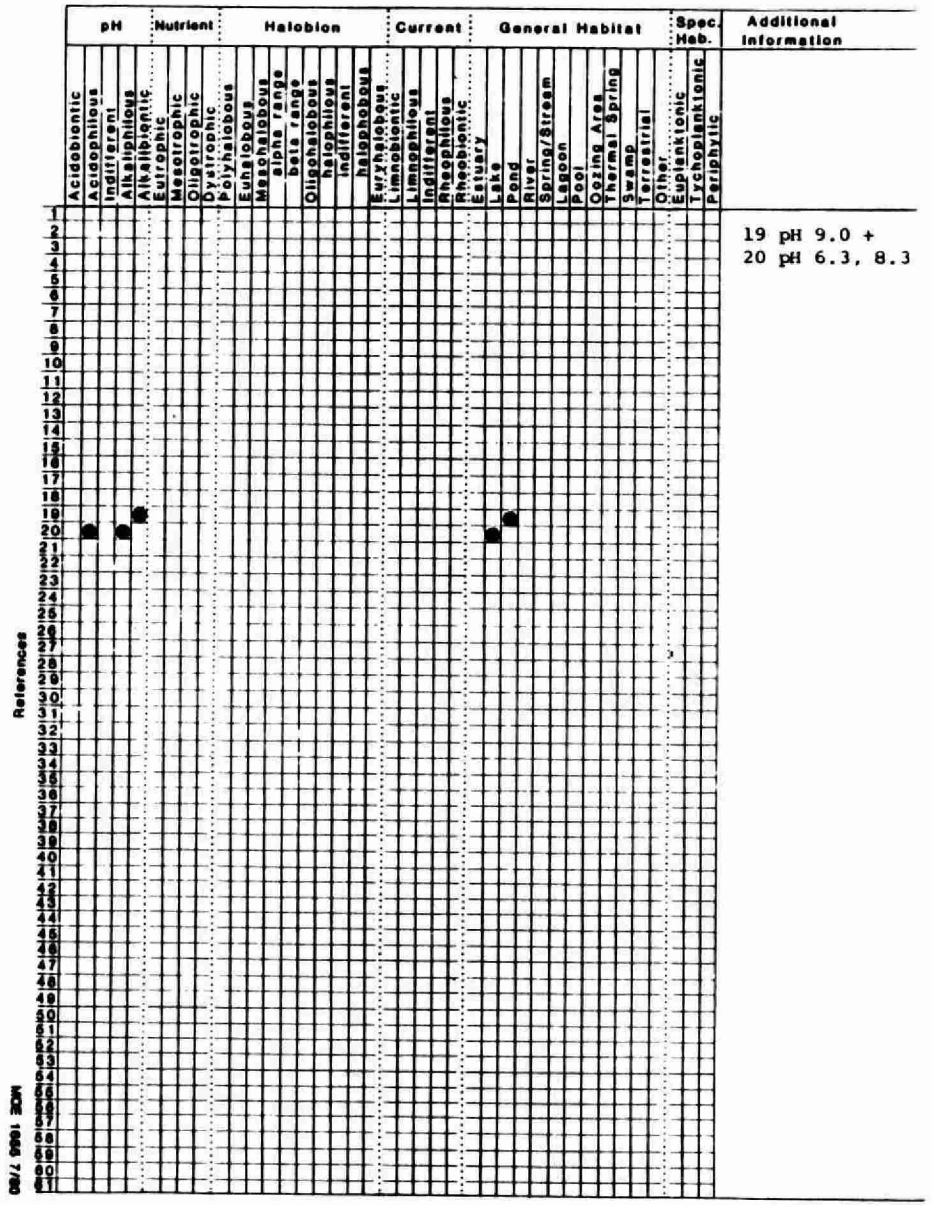
Synonym



4,24,56 polysaprobic & mesosaprobic
5,11,25,32,53 pH range 4.2-9.
8 pH optimum about 8.4
19 pH 5.5-5.9
6.5 +
20 pH 4.0 +
21 pH 3.5-8.5
25 cosmopolitan
25,53 mesosaprobic
29 euryoxybiontic
29 polysaprobic
45 calcium indifferent
56 spring & fall maxima
56 tolerates wide span of ecological conditions
8 a very good indicator of pollution, an obligate nitrogen heterotroph

Taxon Nitzschia palea var. tenuirostris Grun.

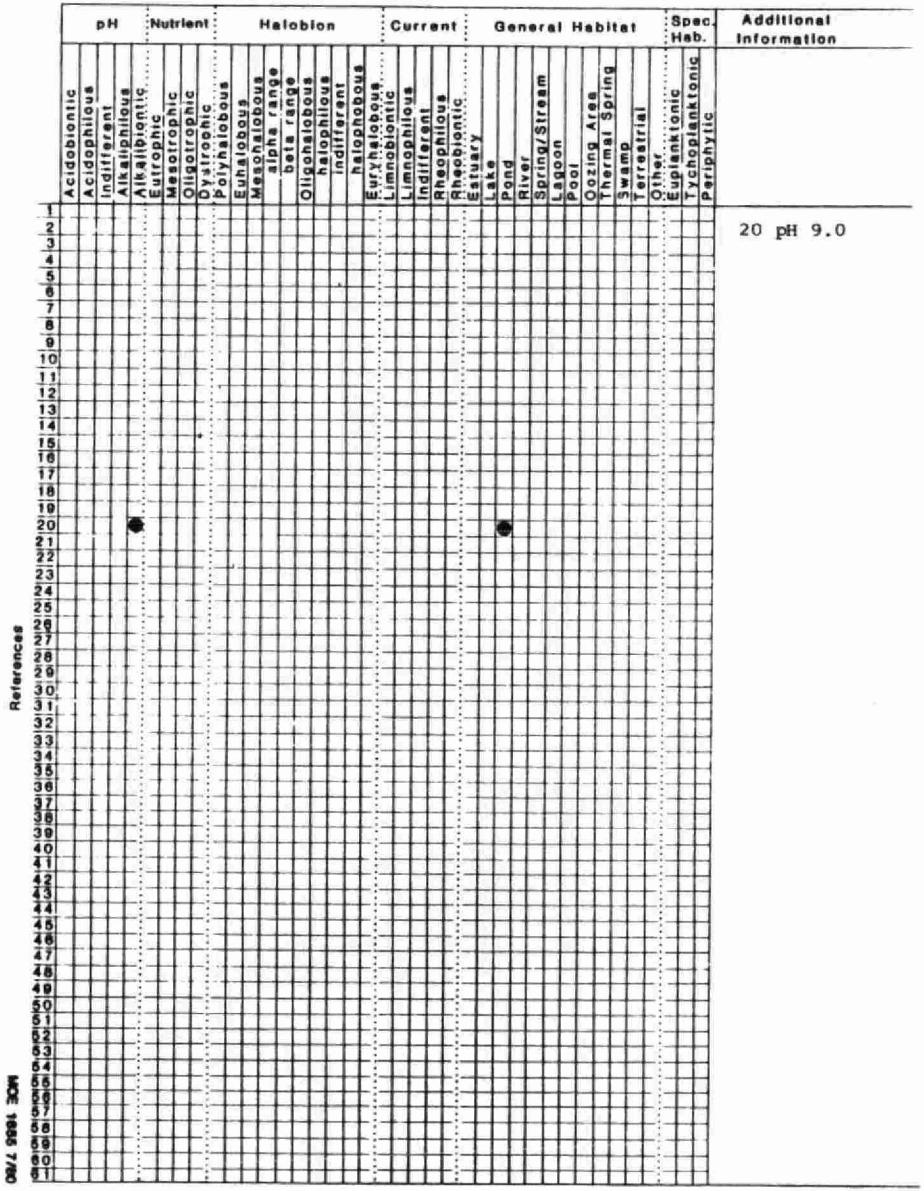
Synonym



19 pH 9.0 +
20 pH 6.3, 8.3

Taxon Nitzschia paleaeformis Hust.

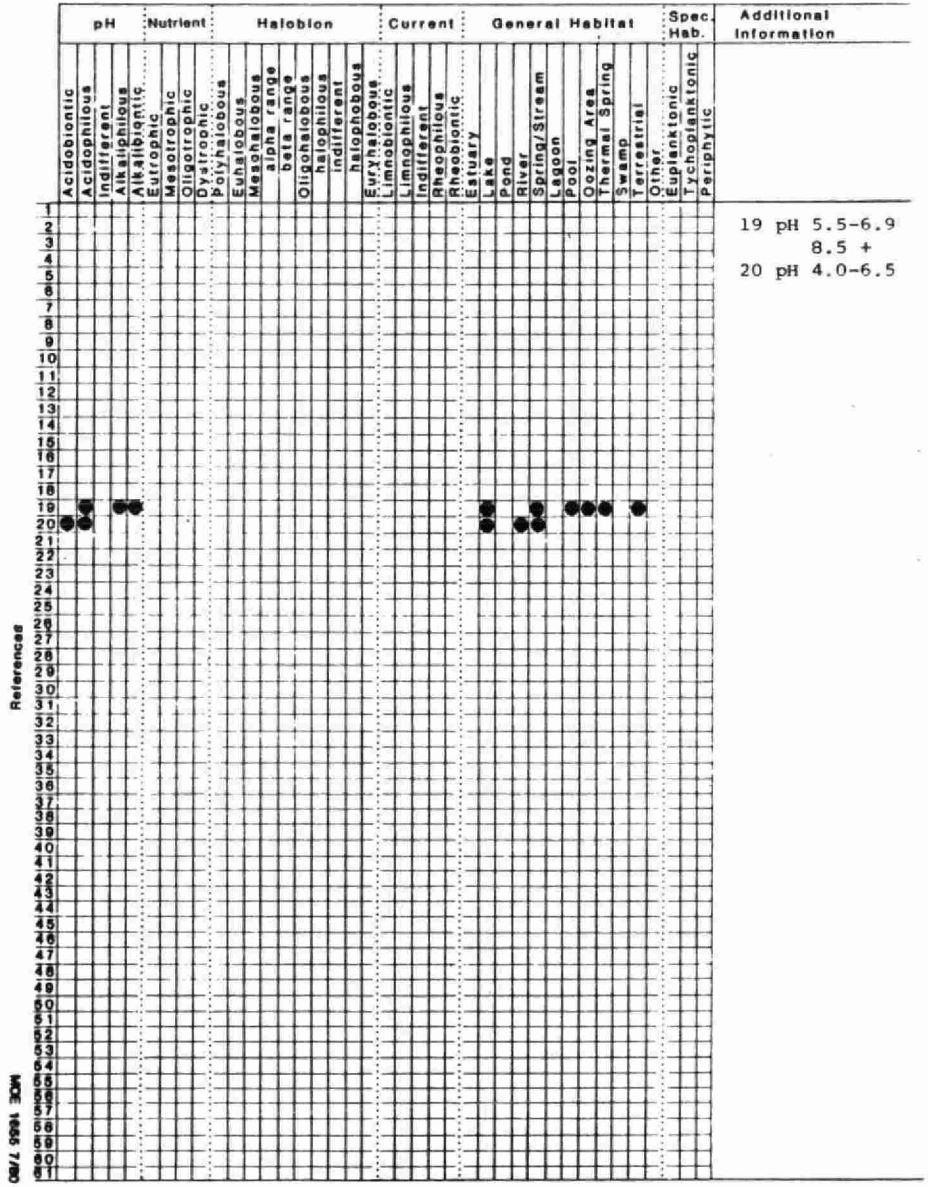
Synonym



20 pH 9.0

Taxon Nitzschia palustris Hust.

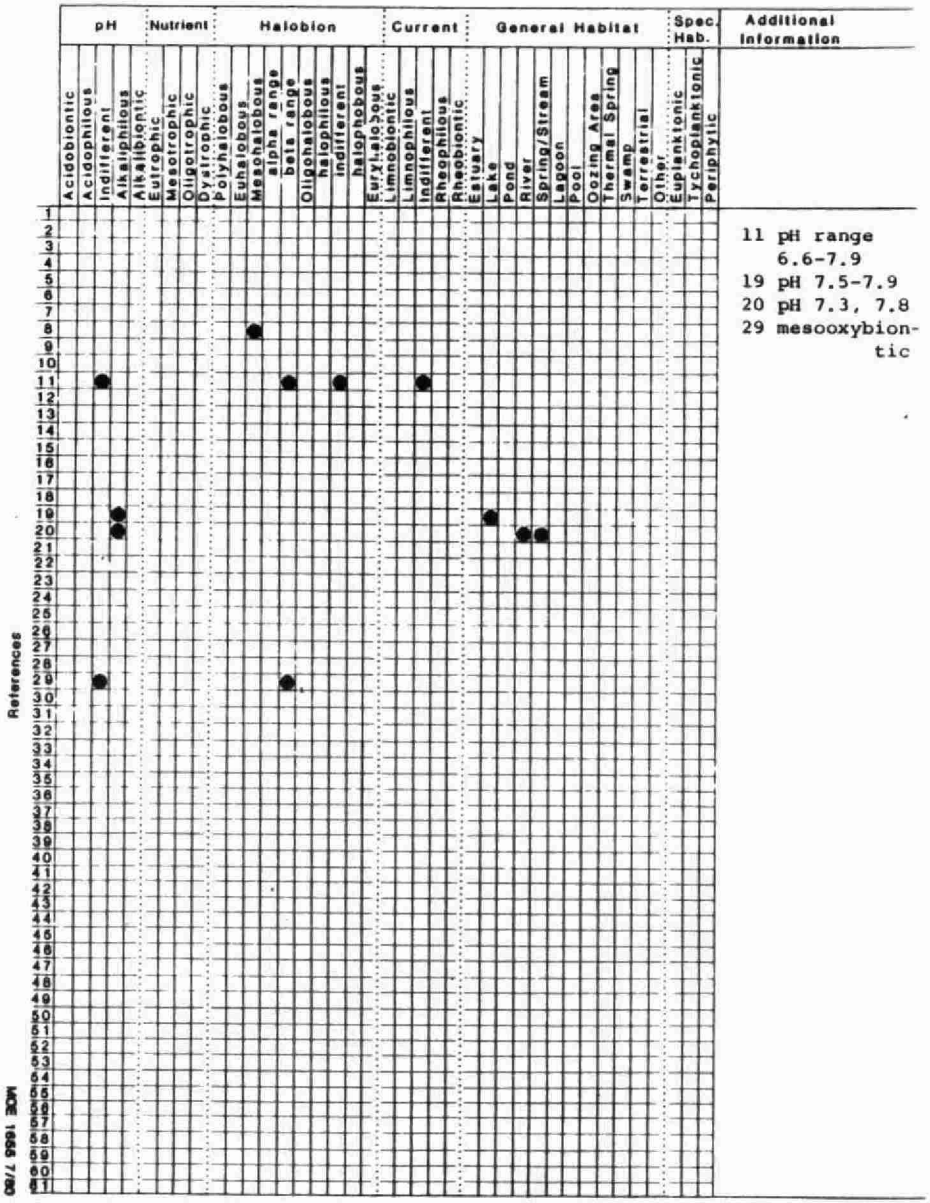
Synonym



19 pH 5.5-6.9
8.5 +
20 pH 4.0-6.5

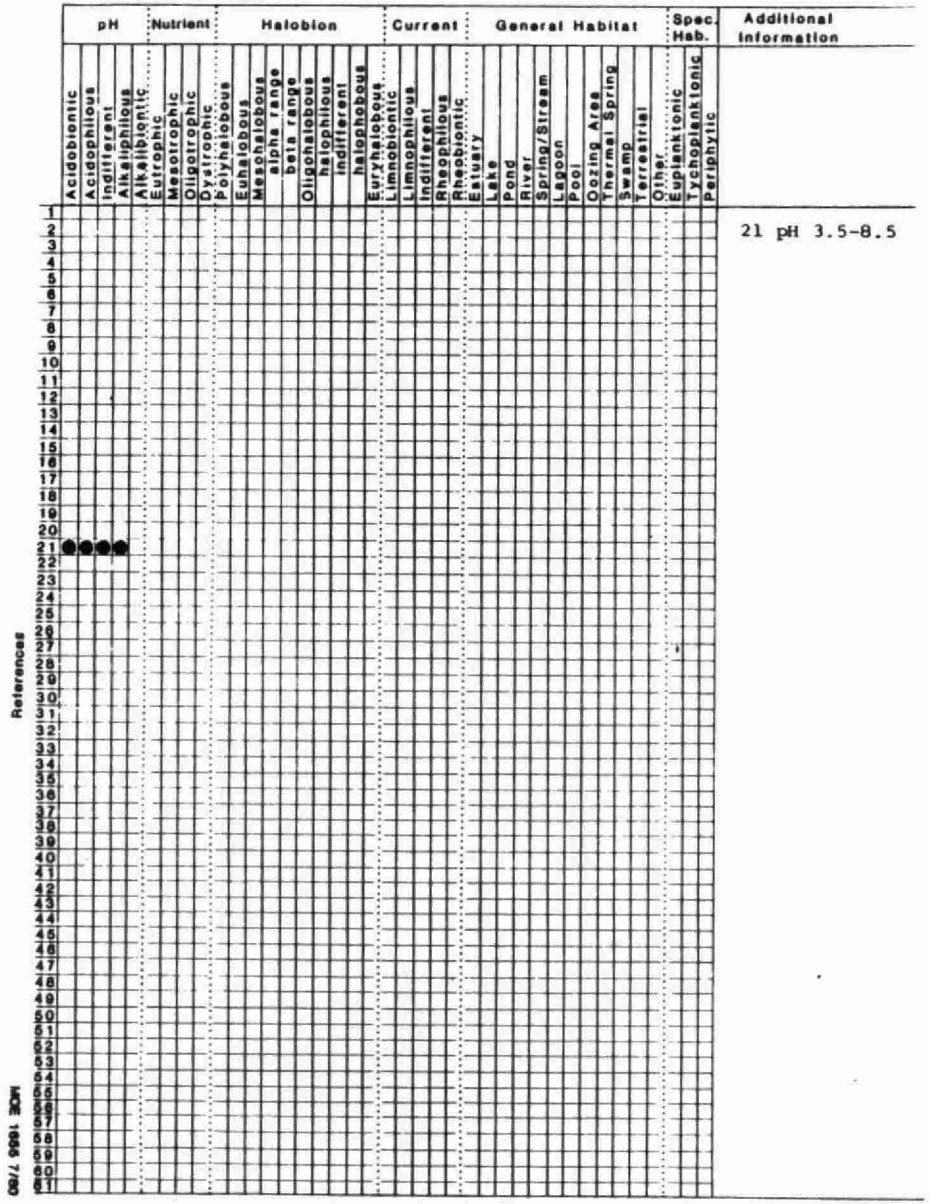
Taxon Nitzschia parvula Lewis

Synonym



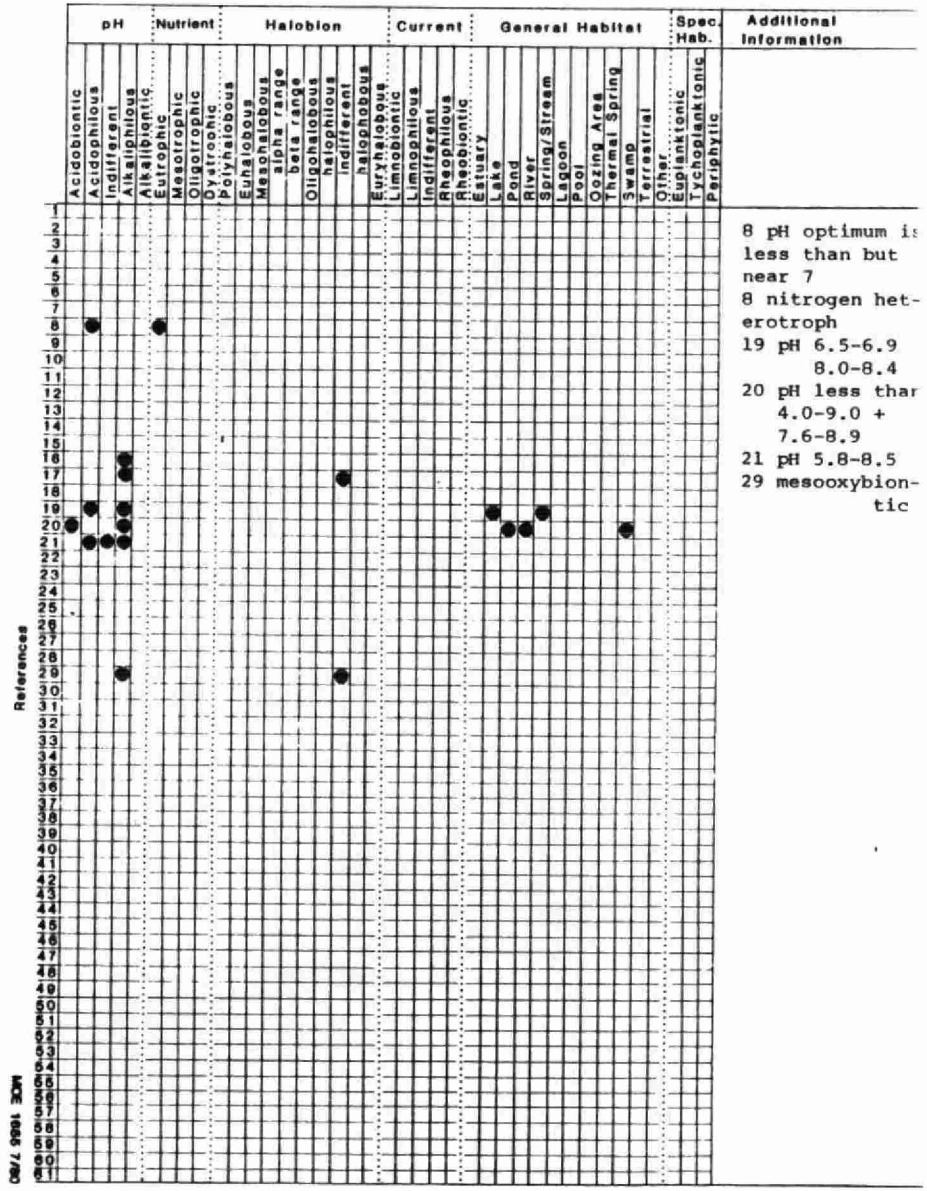
Taxon Nitzschia parvuloides Chol.

Synonym



Taxon Nitzschia perminuta Grun.

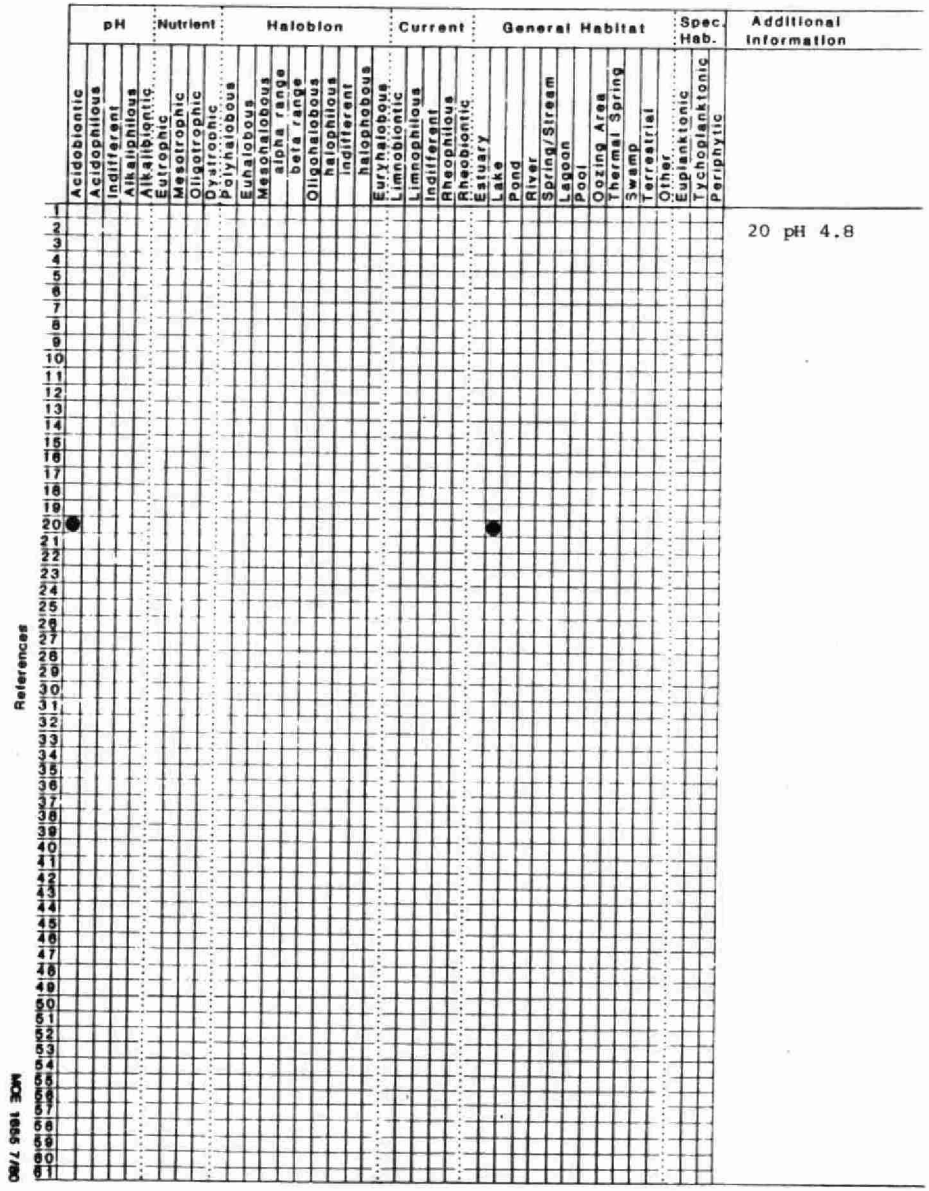
Synonym



8 pH optimum is less than but near 7
8 nitrogen heterotroph
19 pH 6.5-6.9
8.0-8.4
20 pH less than 4.0-9.0 + 7.6-8.9
21 pH 5.8-8.5
29 mesooxybiontic

Taxon Nitzschia pilum Hust.

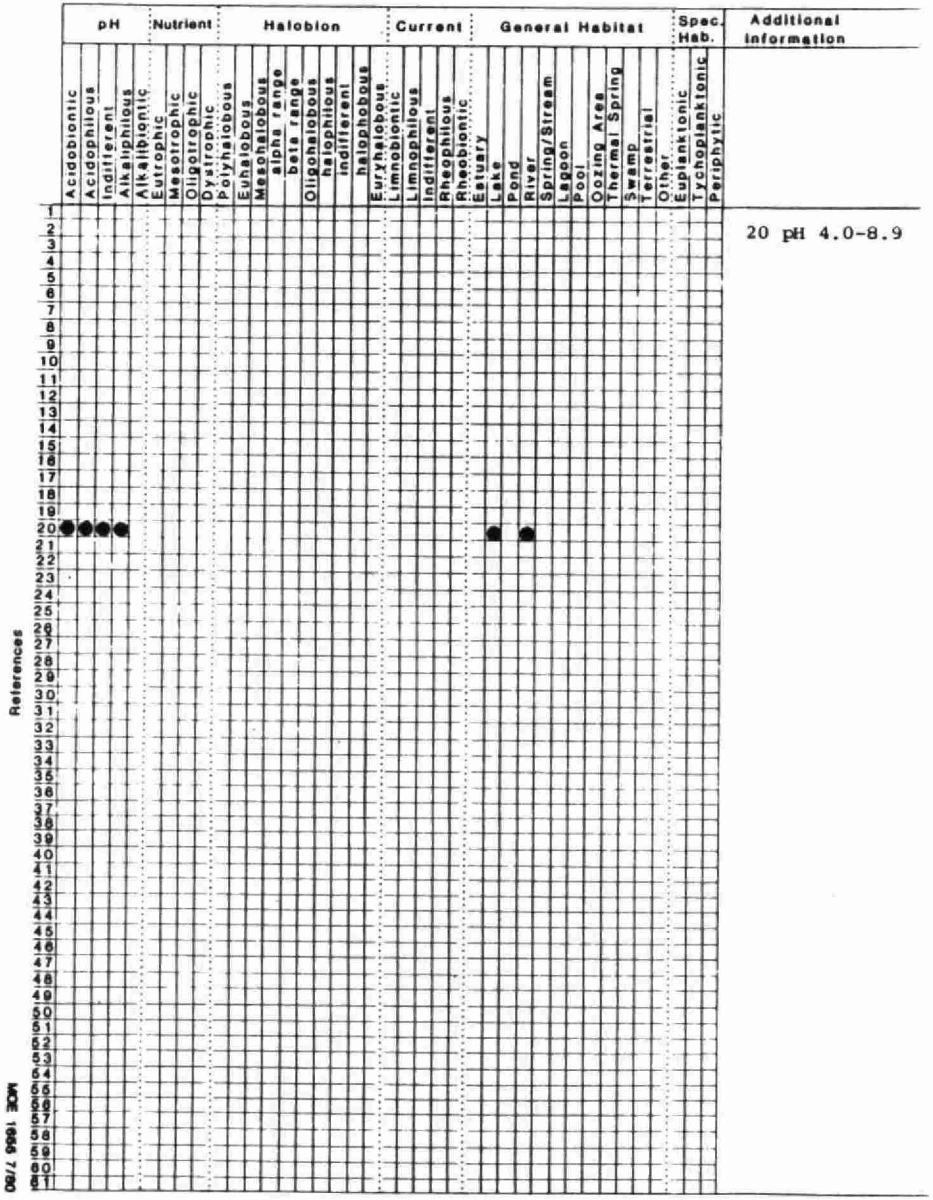
Synonym



20 pH 4.8

Taxon Nitzschia plana var. fennica f.ornata Kolbe

Synonym

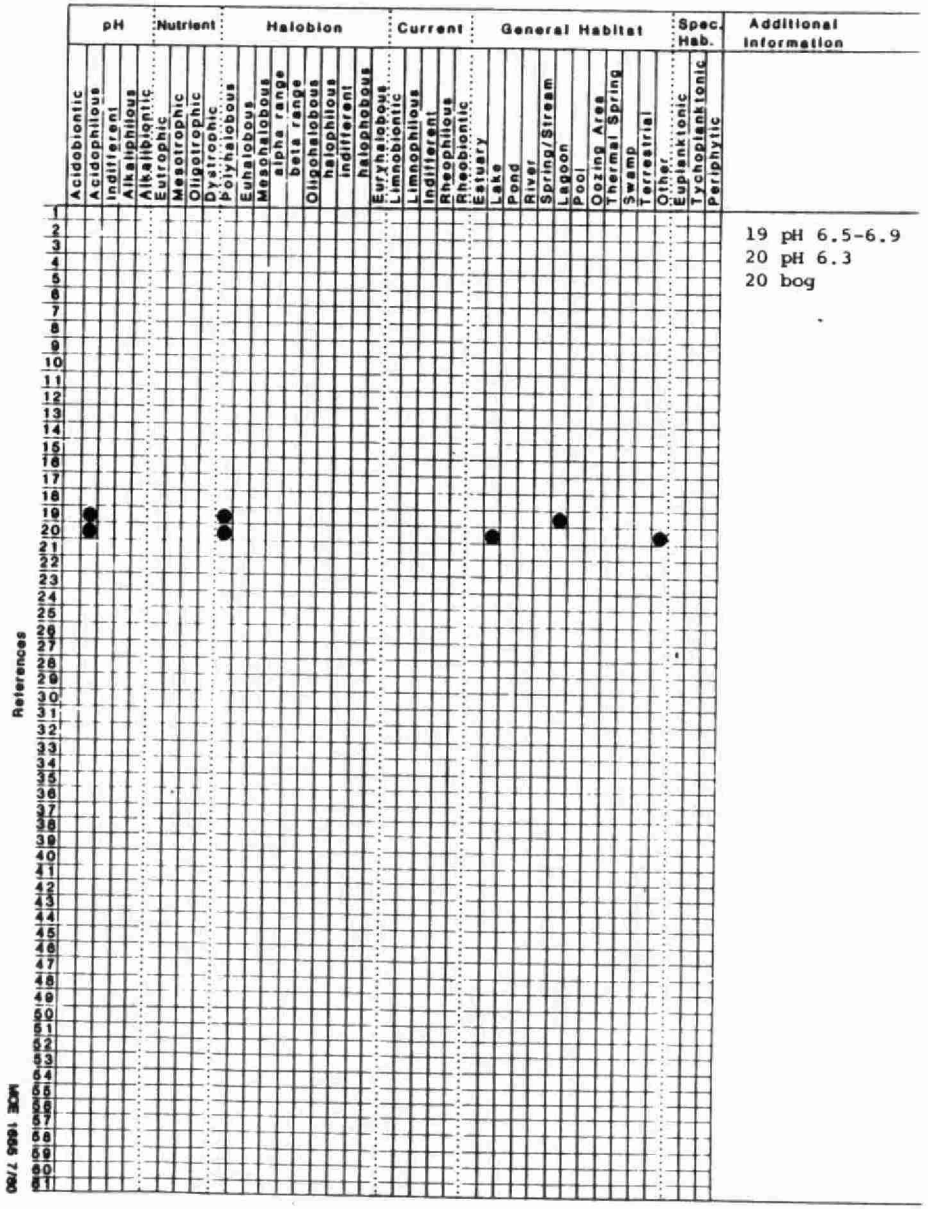


Additional information

20 pH 4.0-8.9

Taxon Nitzschia punctata (W. Sm.) Grun.

Synonym

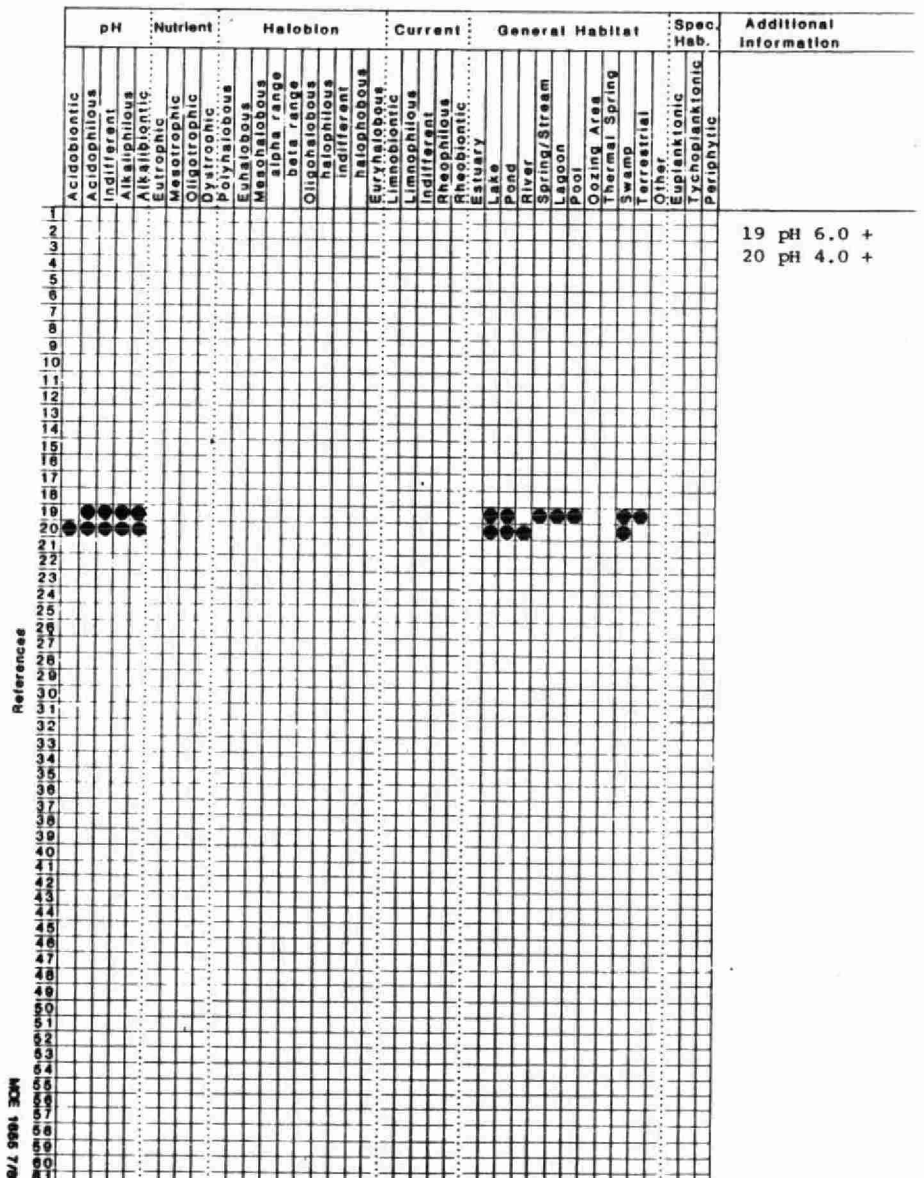


Additional information

19 pH 6.5-6.9
20 pH 6.3
20 bog

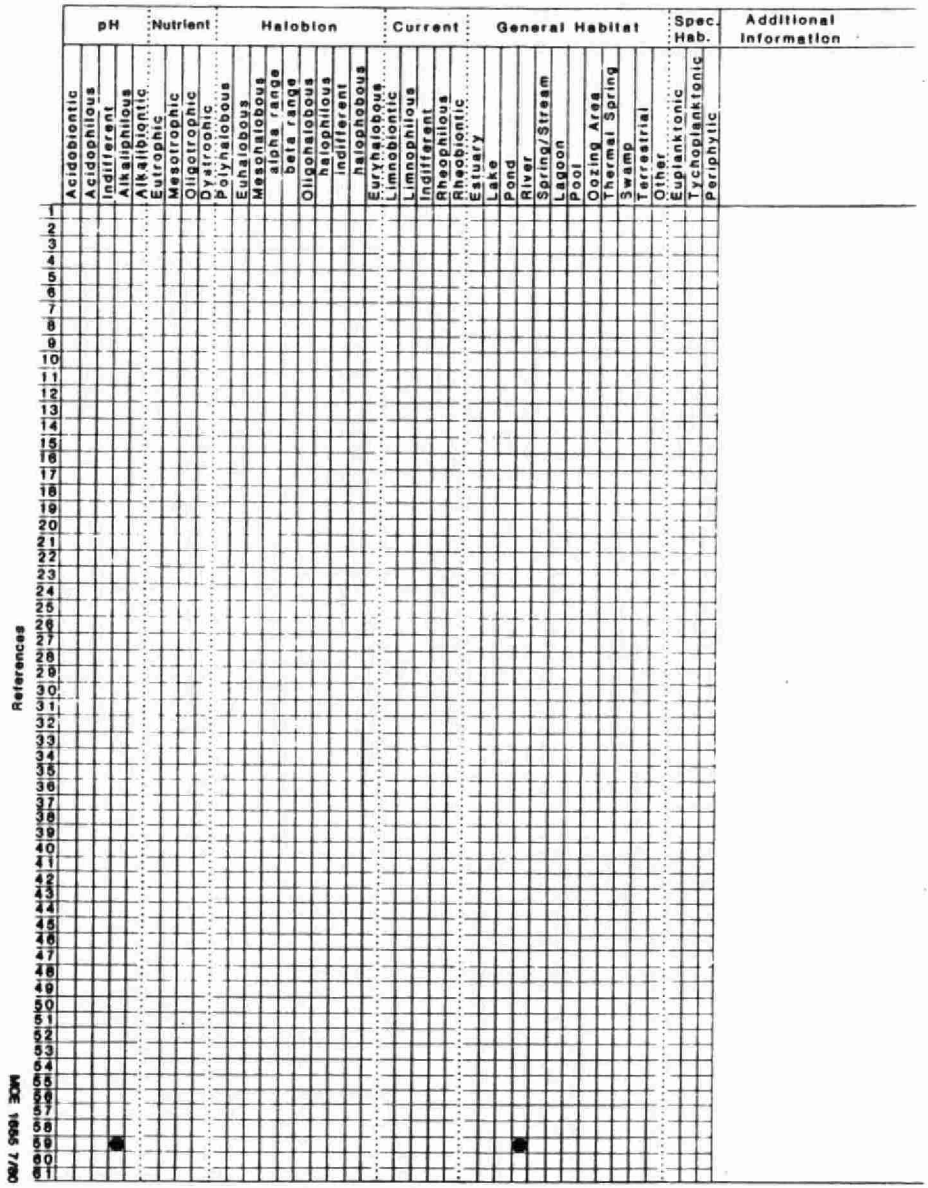
Taxon Nitzschia recta Hantzsch. var. recta

Synonym



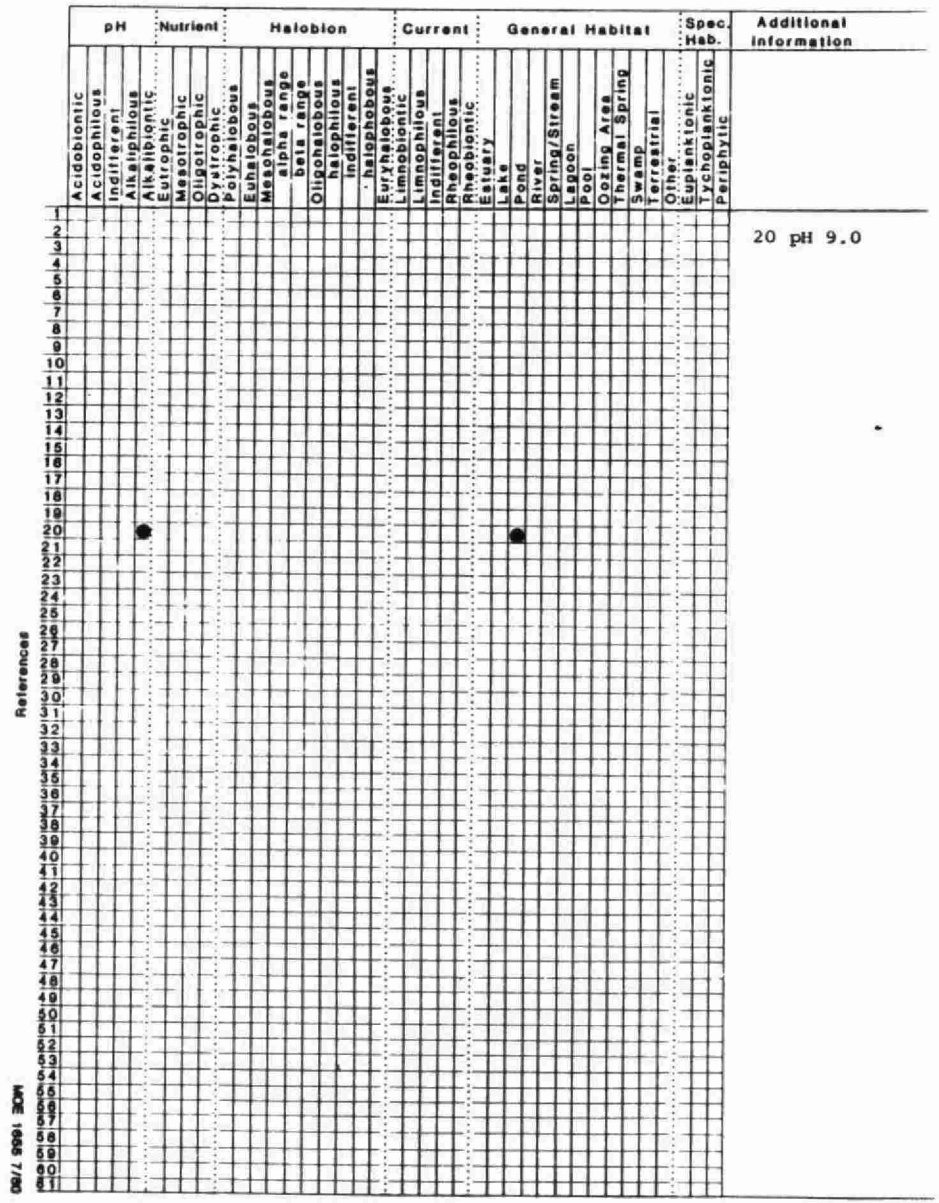
Taxon Nitzschia recta var. typica Cl.

Synonym



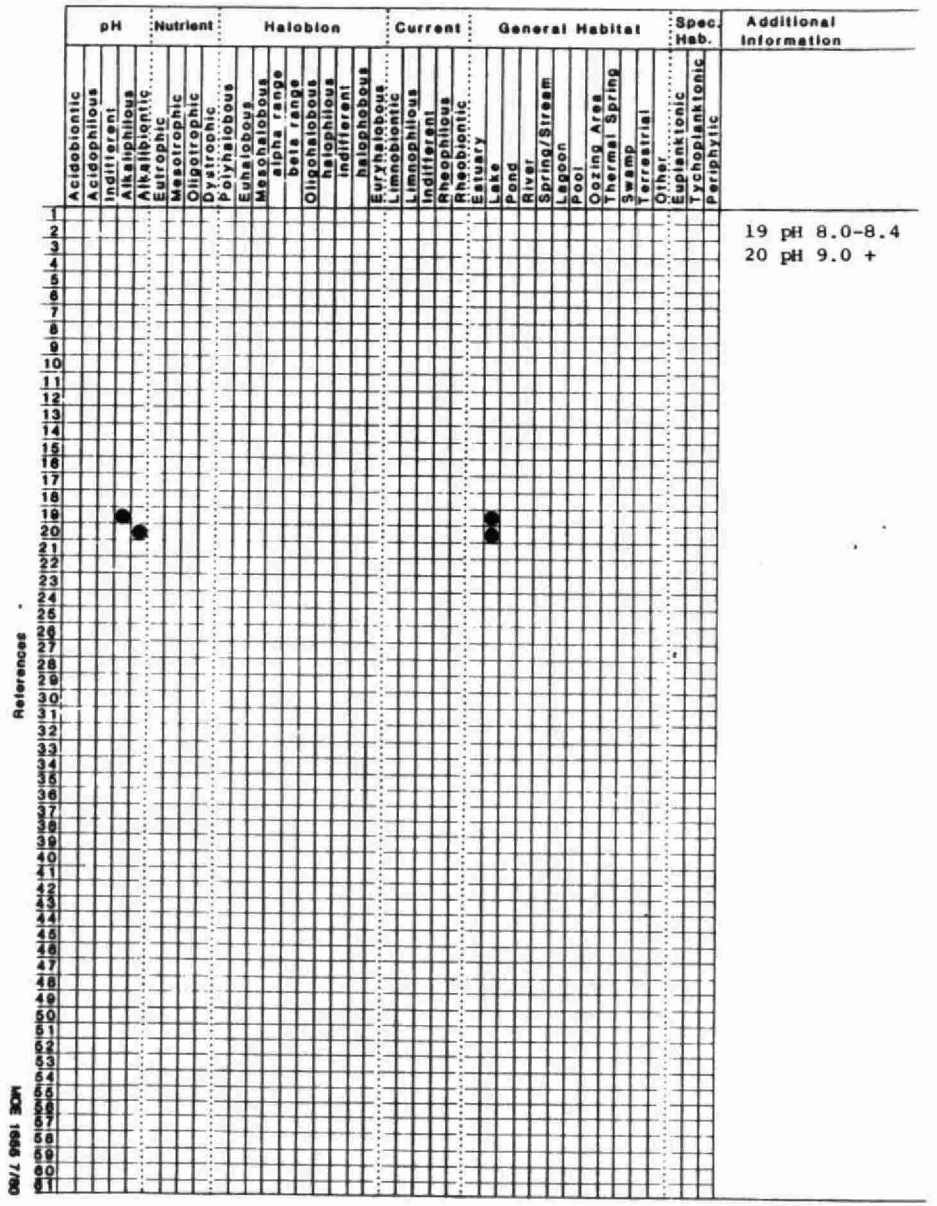
Taxon Nitzschia rectiformis Hust.

Synonym



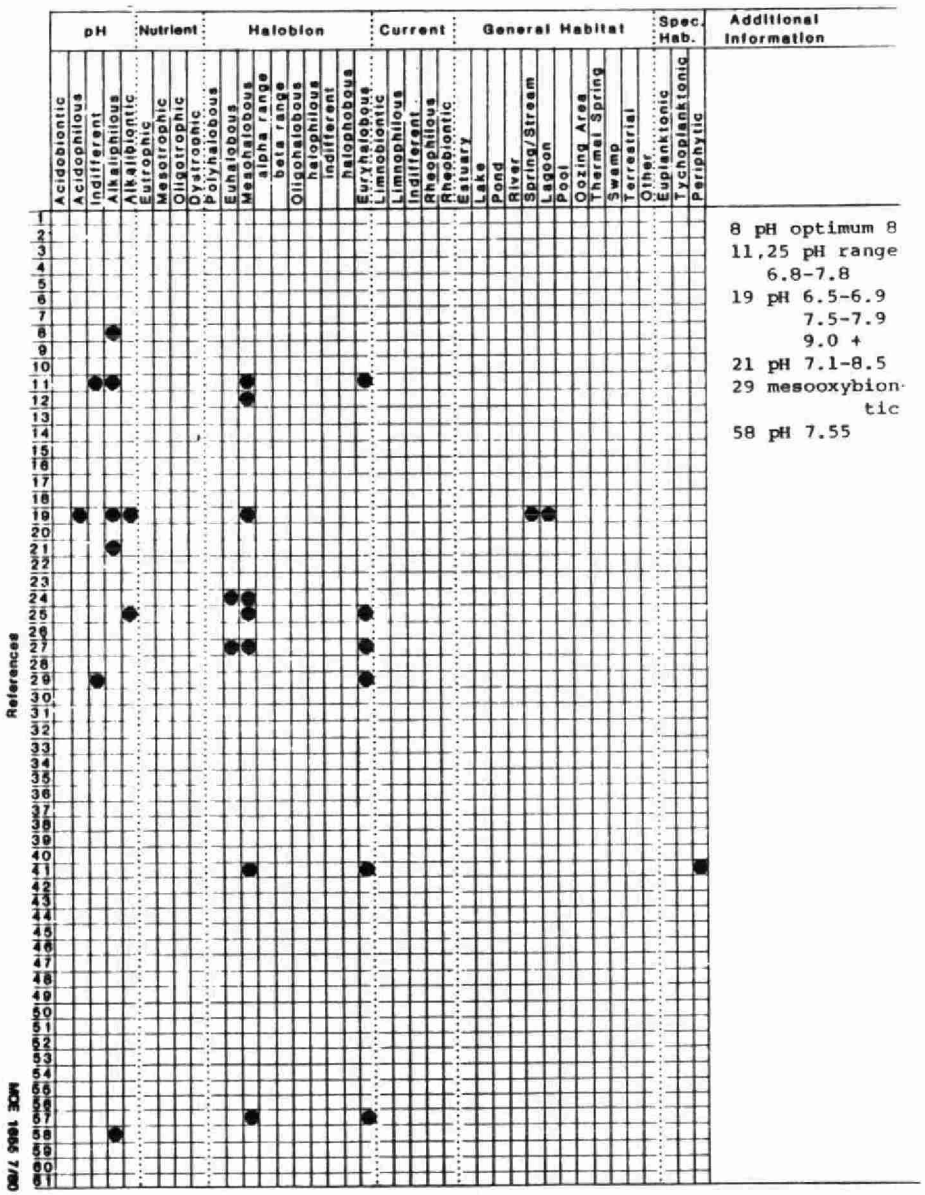
Taxon Nitzschia romana Grun.

Synonym



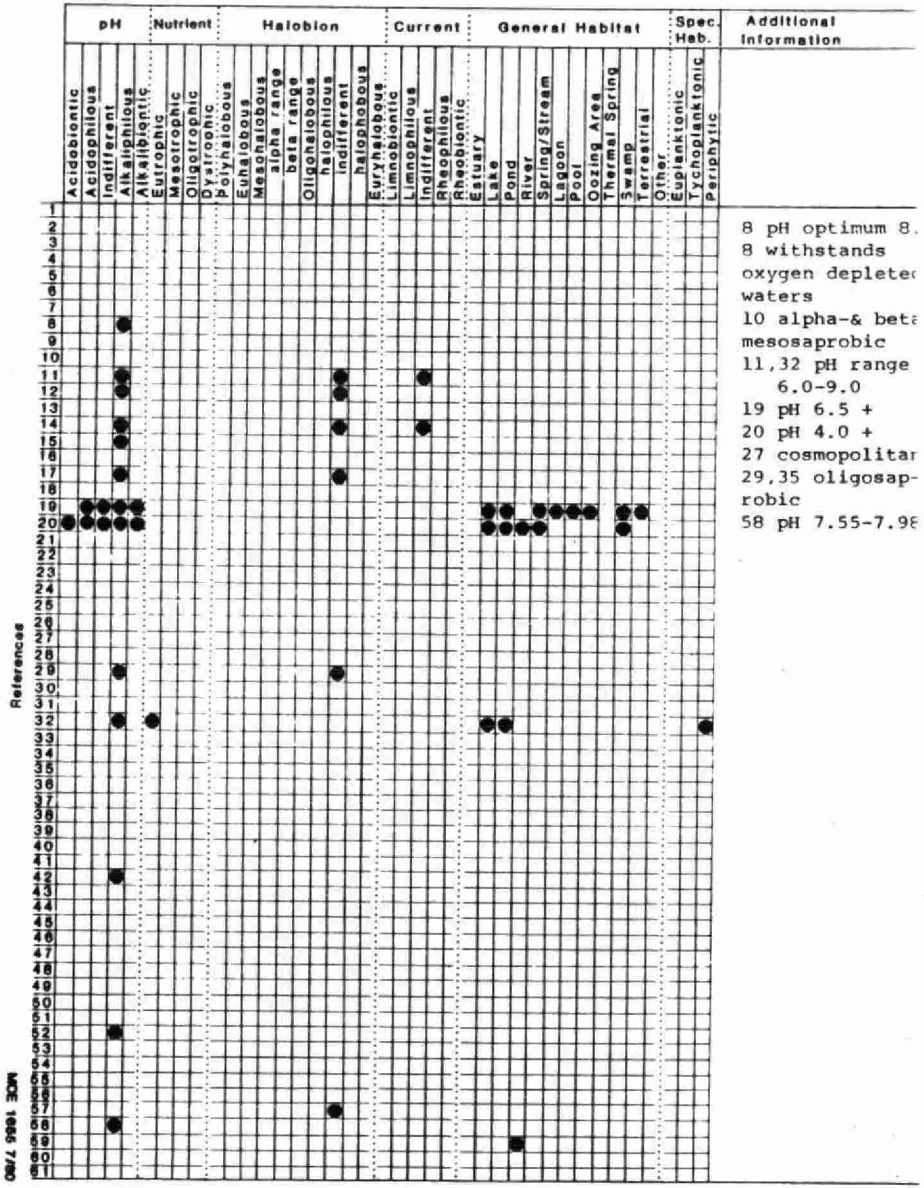
Taxon Nitzschia sigma (Kutz.) W. Sm.

Synonym



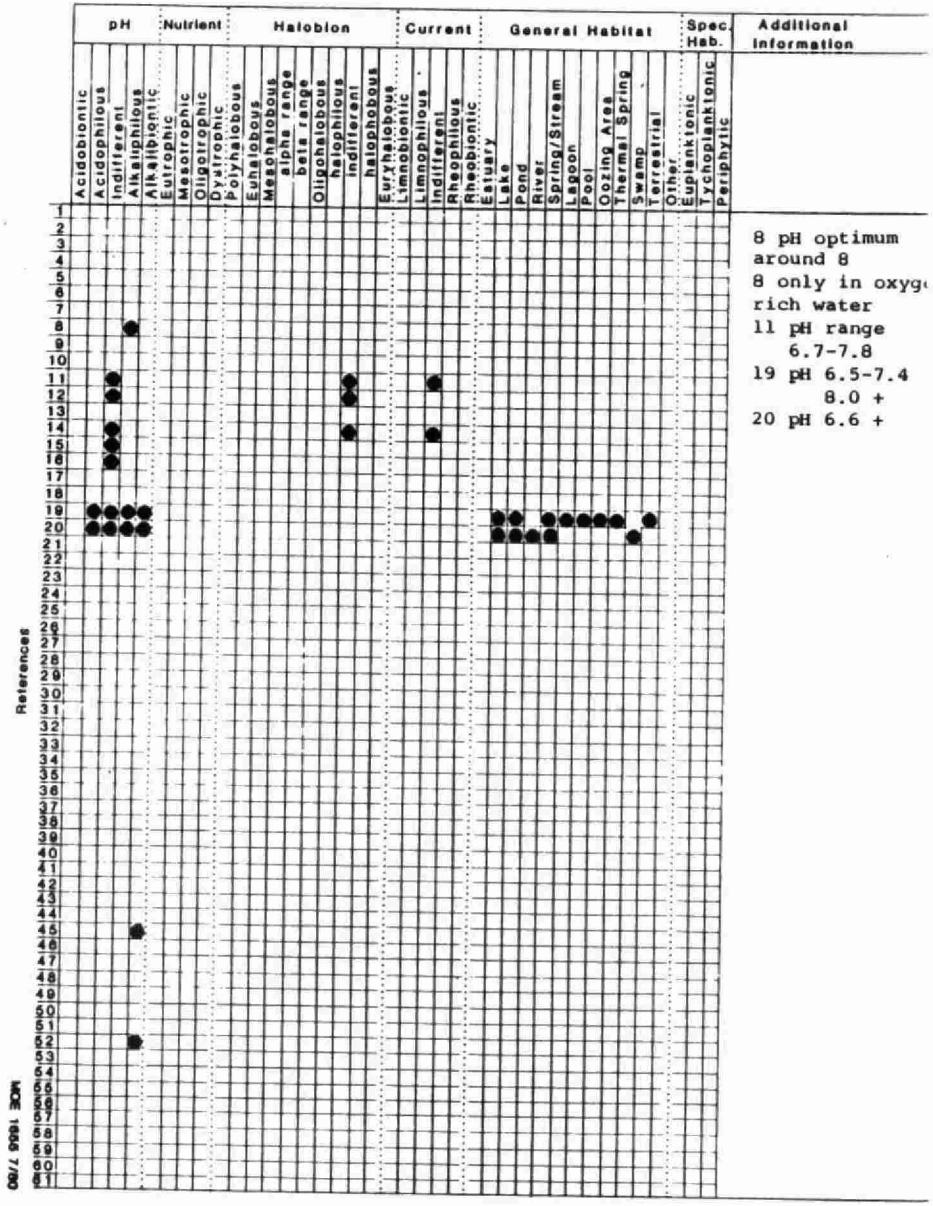
Taxon Nitzschia sigmoidea (Ehr.) W. Sm.

Synonym



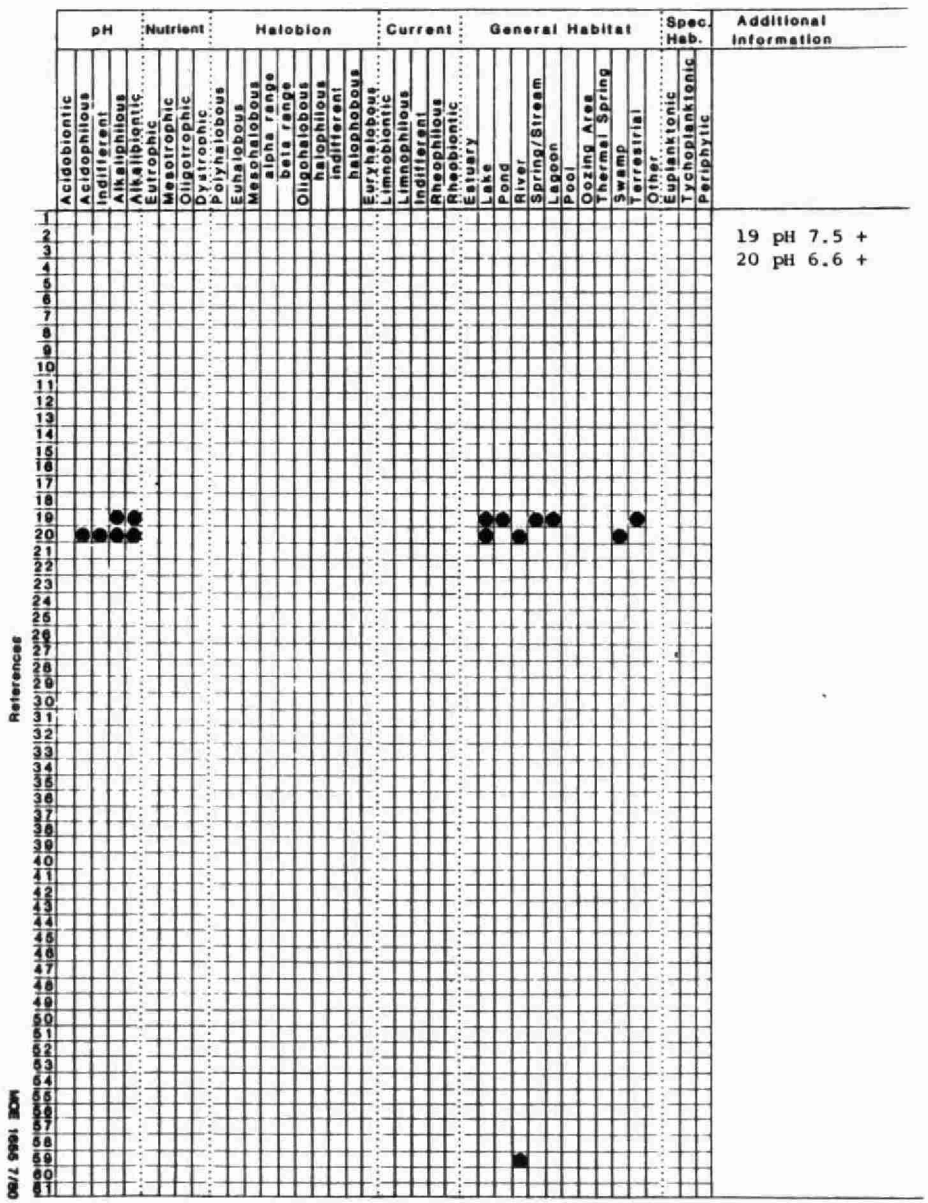
Taxon Nitzschia sinuata (W. Sm.) Grun. var. sinuata

Synonym



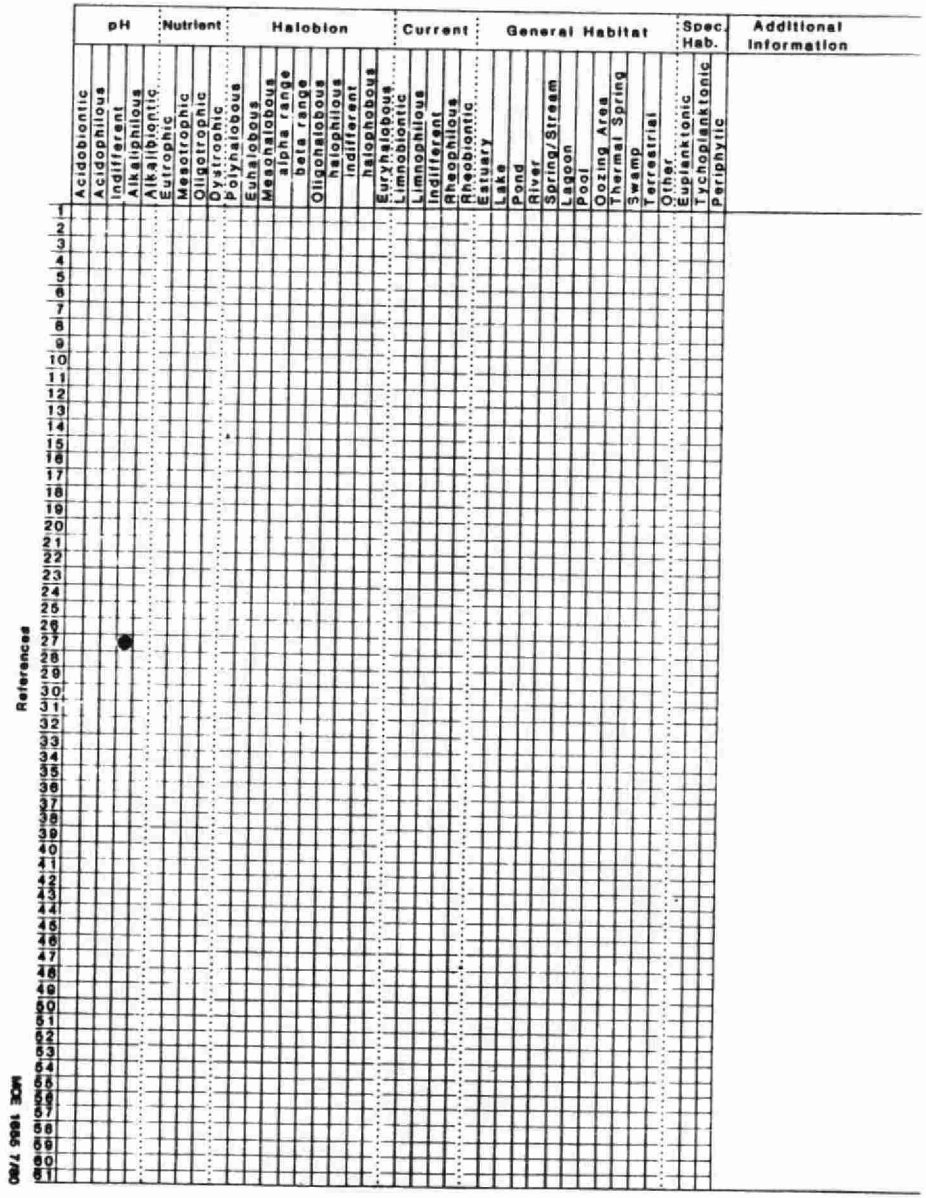
Taxon Nitzschia sinuata var. tabellaria Grun.

Synonym



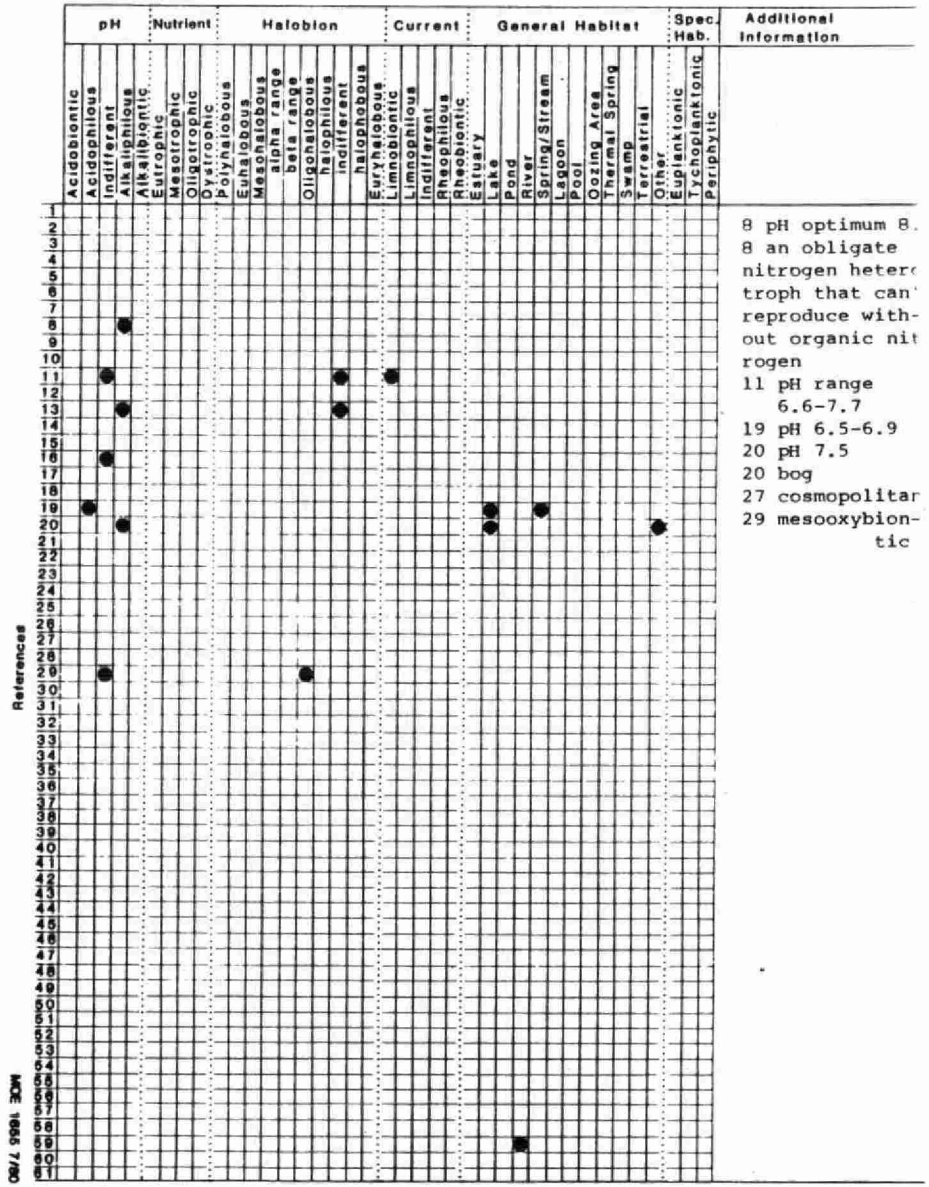
Taxon Nitzschia solgensis Cl.

Synonym



Taxon Nitzschia stagnorum Rabh.

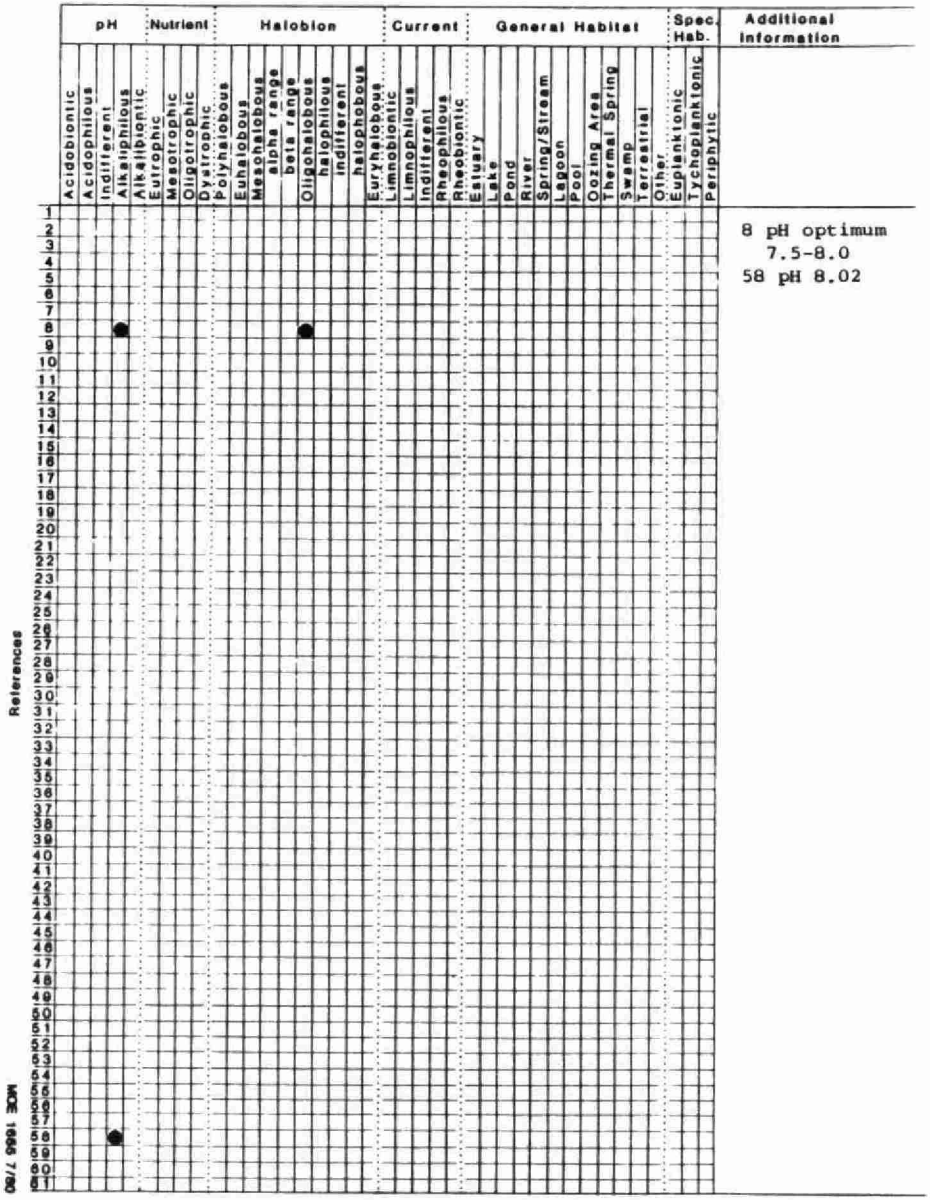
Synonym



8 pH optimum 8.
8 an obligate nitrogen heter troph that can reproduce without organic nit rogen
11 pH range 6.6-7.7
19 pH 6.5-6.9
20 pH 7.5
20 bog
27 cosmopolitar
29 mesooxybiontic

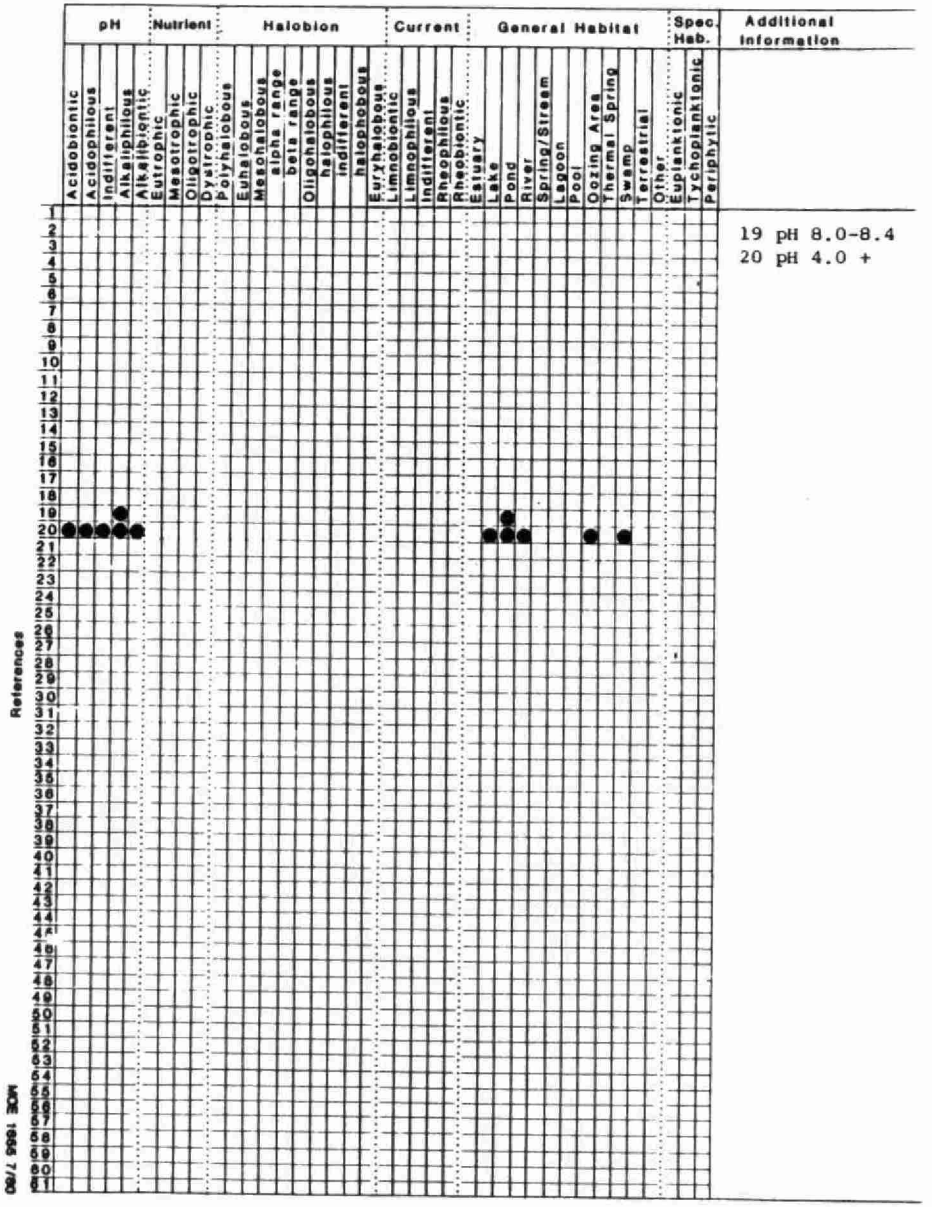
Taxon Nitzschia sublinearis Hust.

Synonym



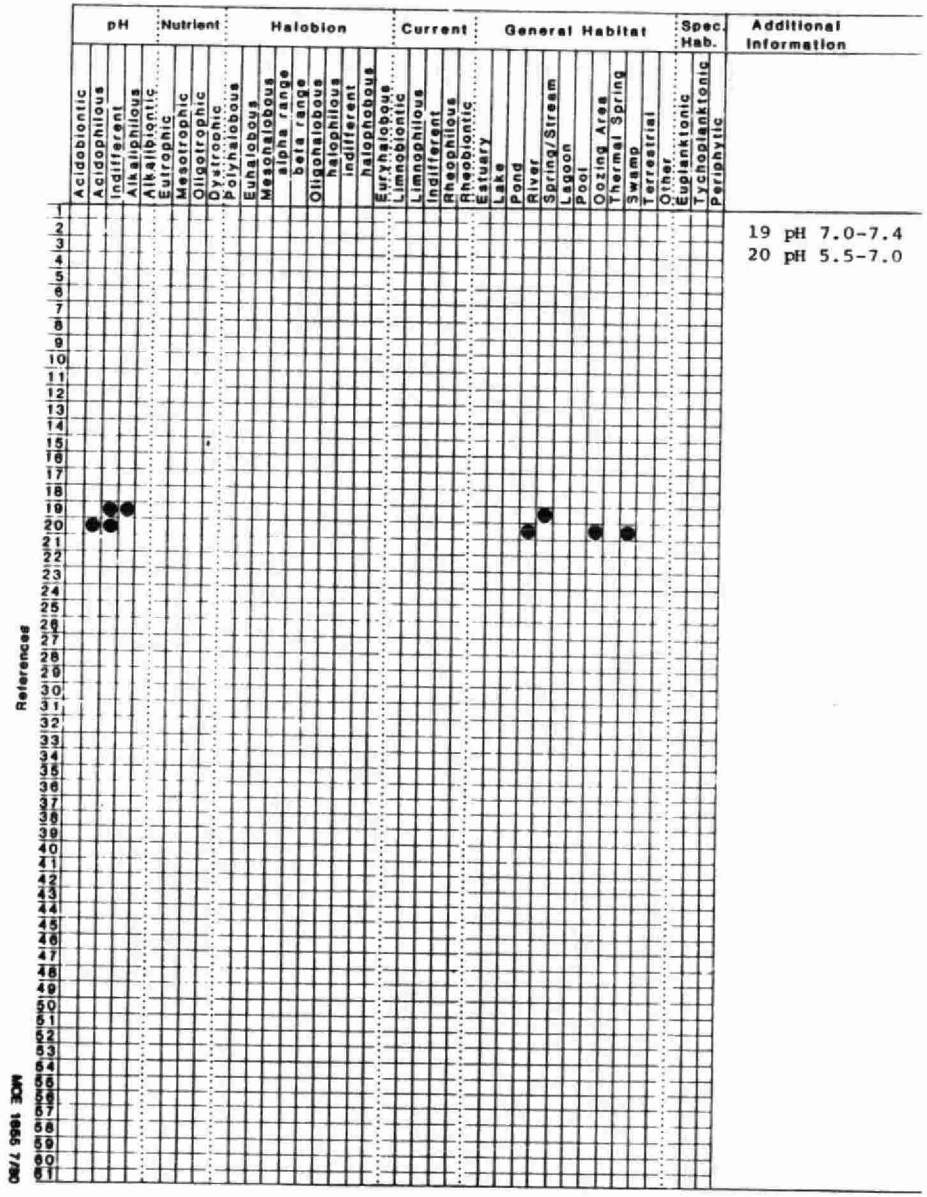
Taxon Nitzschia tenuis Grun.

Synonym



Taxon Nitzschia terrestris (Peter.) Hust.

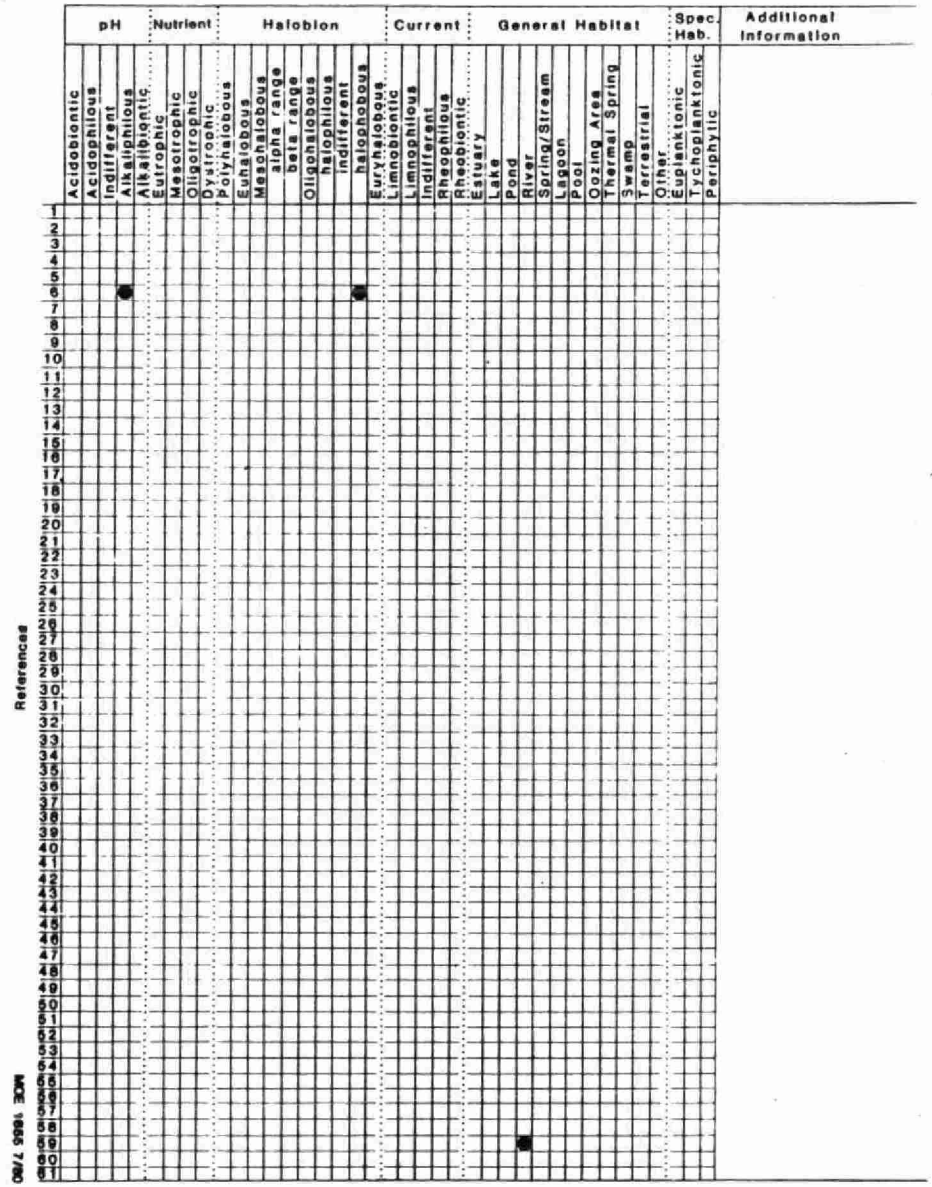
Synonym



19 pH 7.0-7.4
20 pH 5.5-7.0

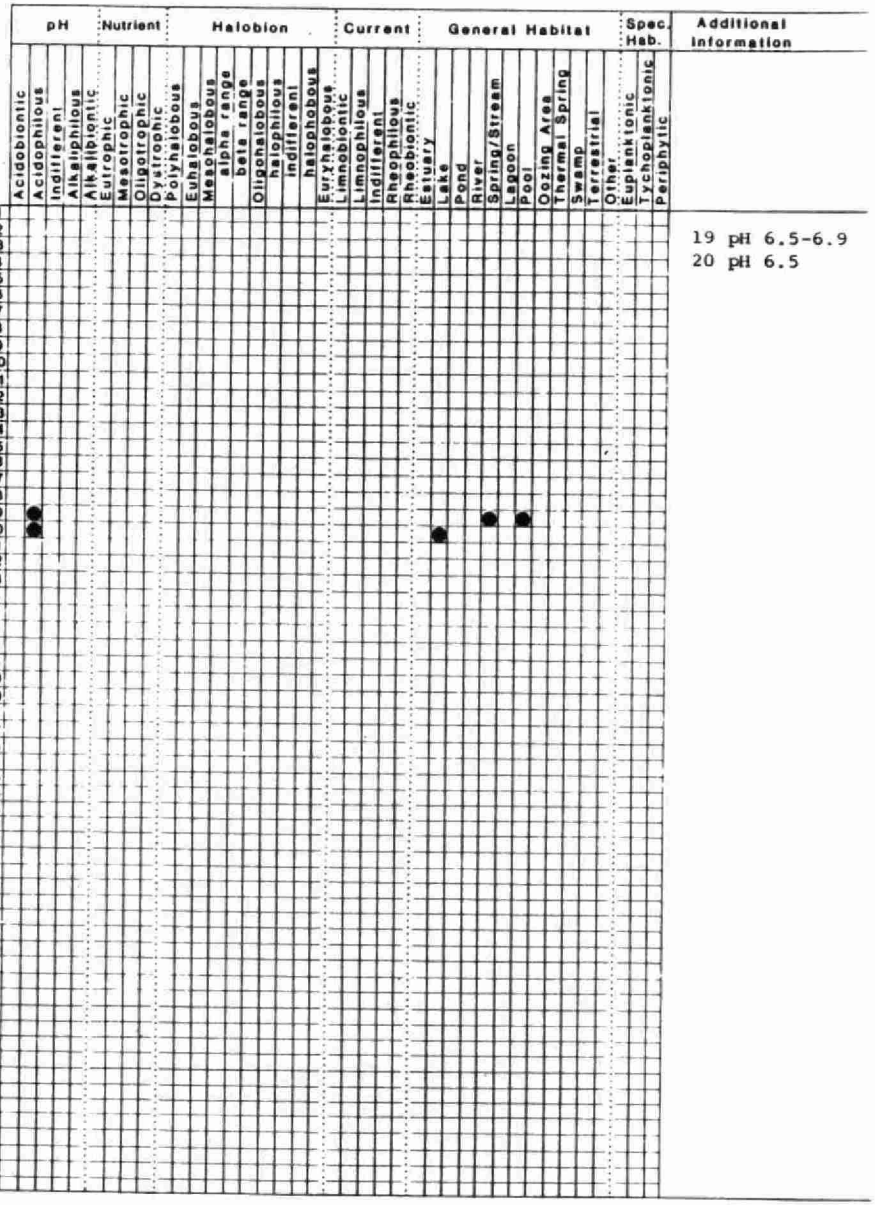
Taxon Nitzschia thermalis var. genuina A. Mayer

Synonym



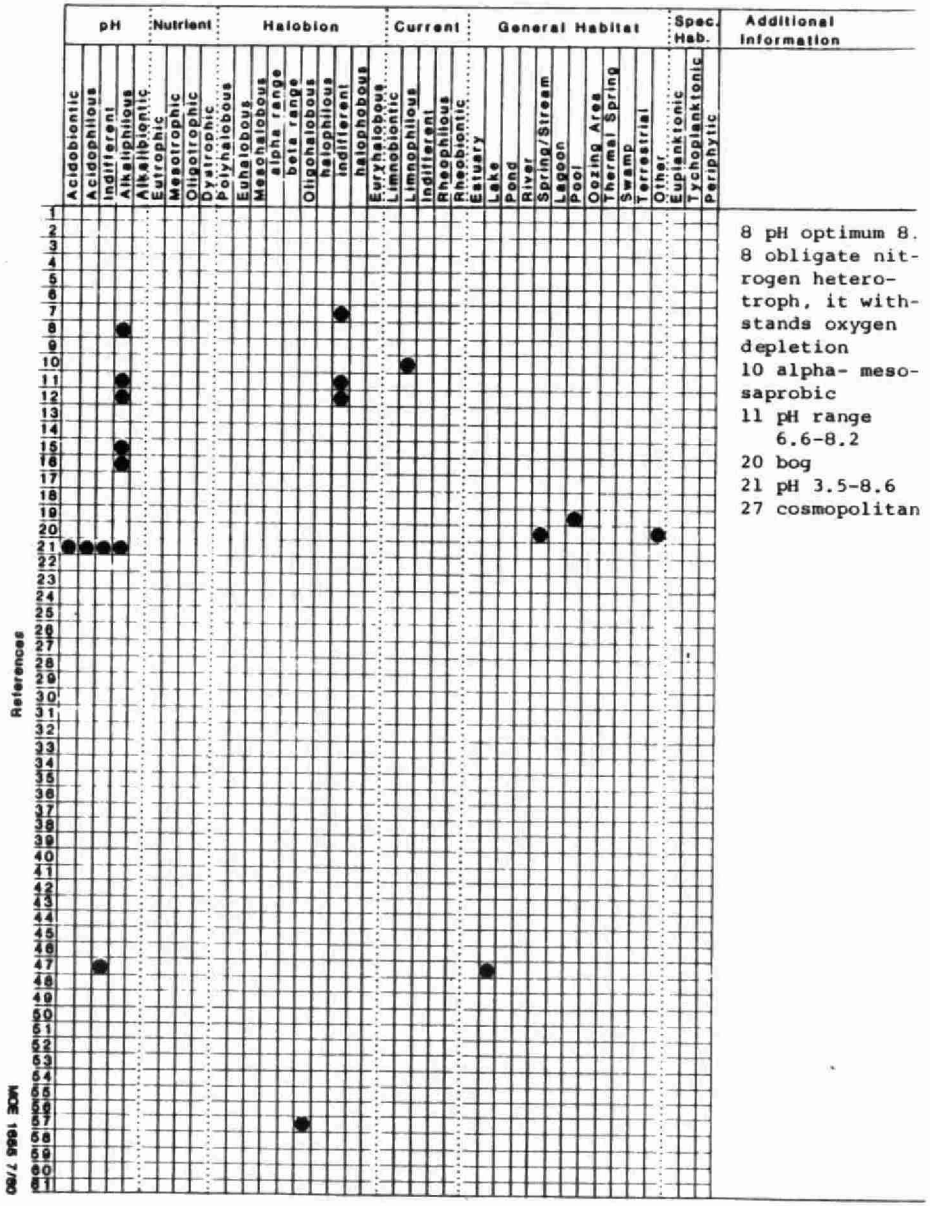
Taxon Nitzschia thermalis var. minor Hilse

Synonym



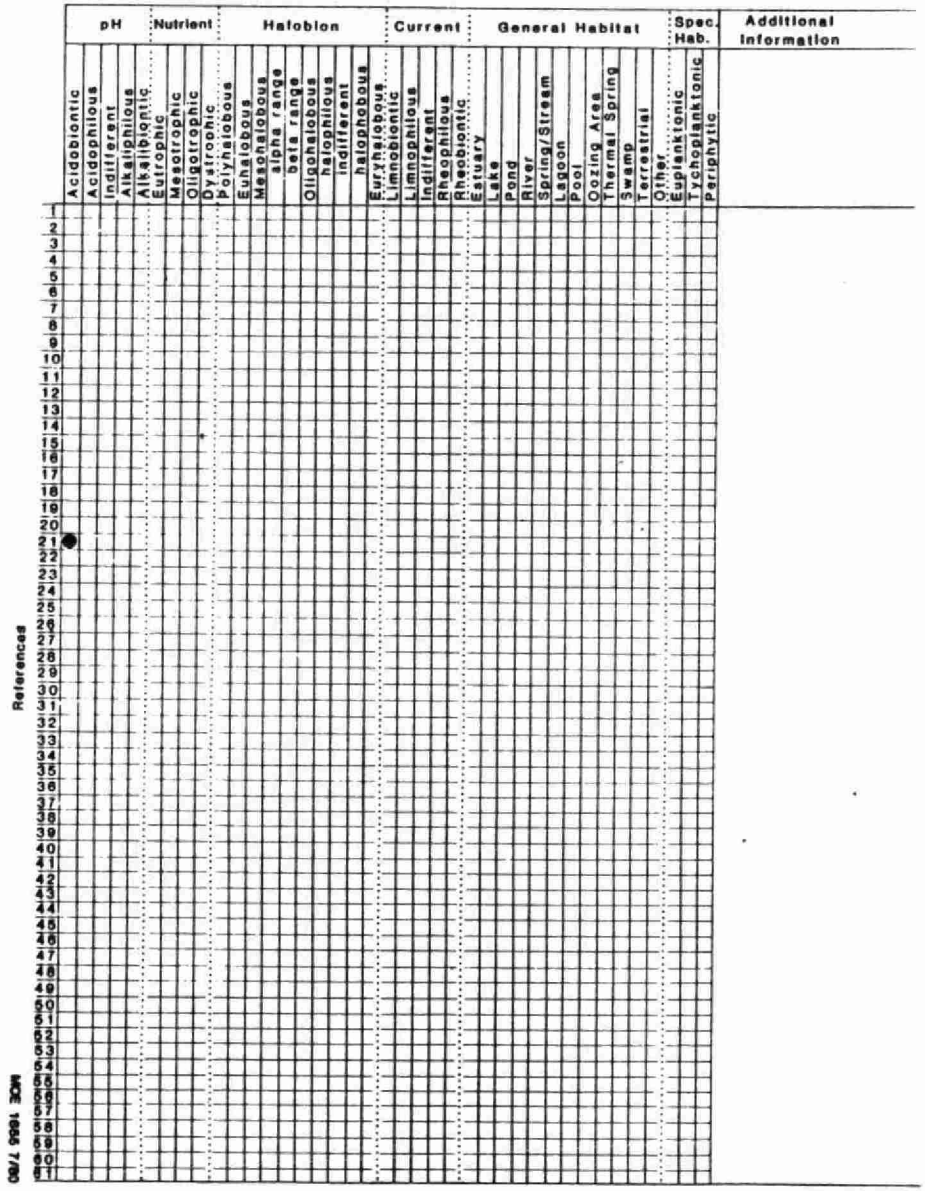
Taxon Nitzschia thermalis Kutz. var. thermalis

Synonym



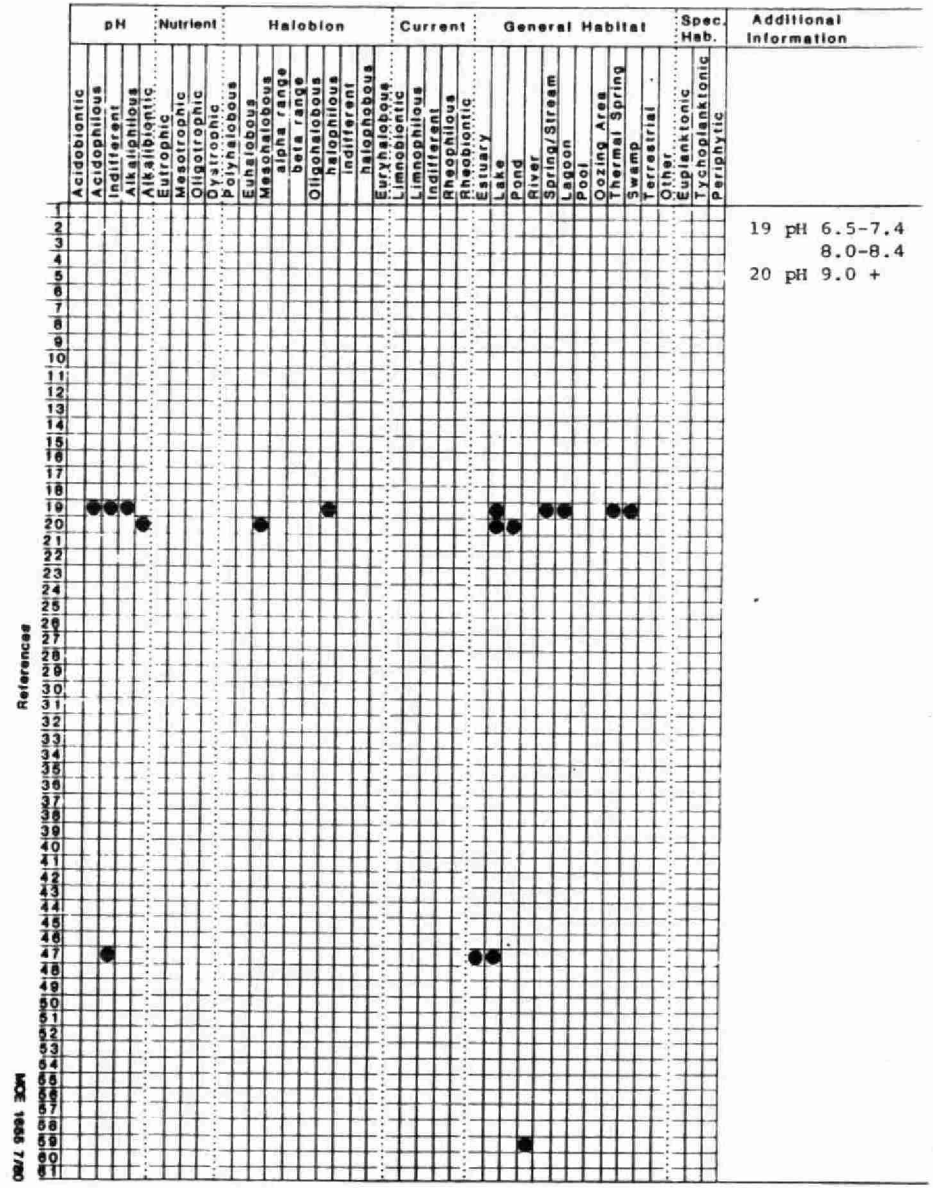
Taxon Nitzschia tropica Hust.

Synonym



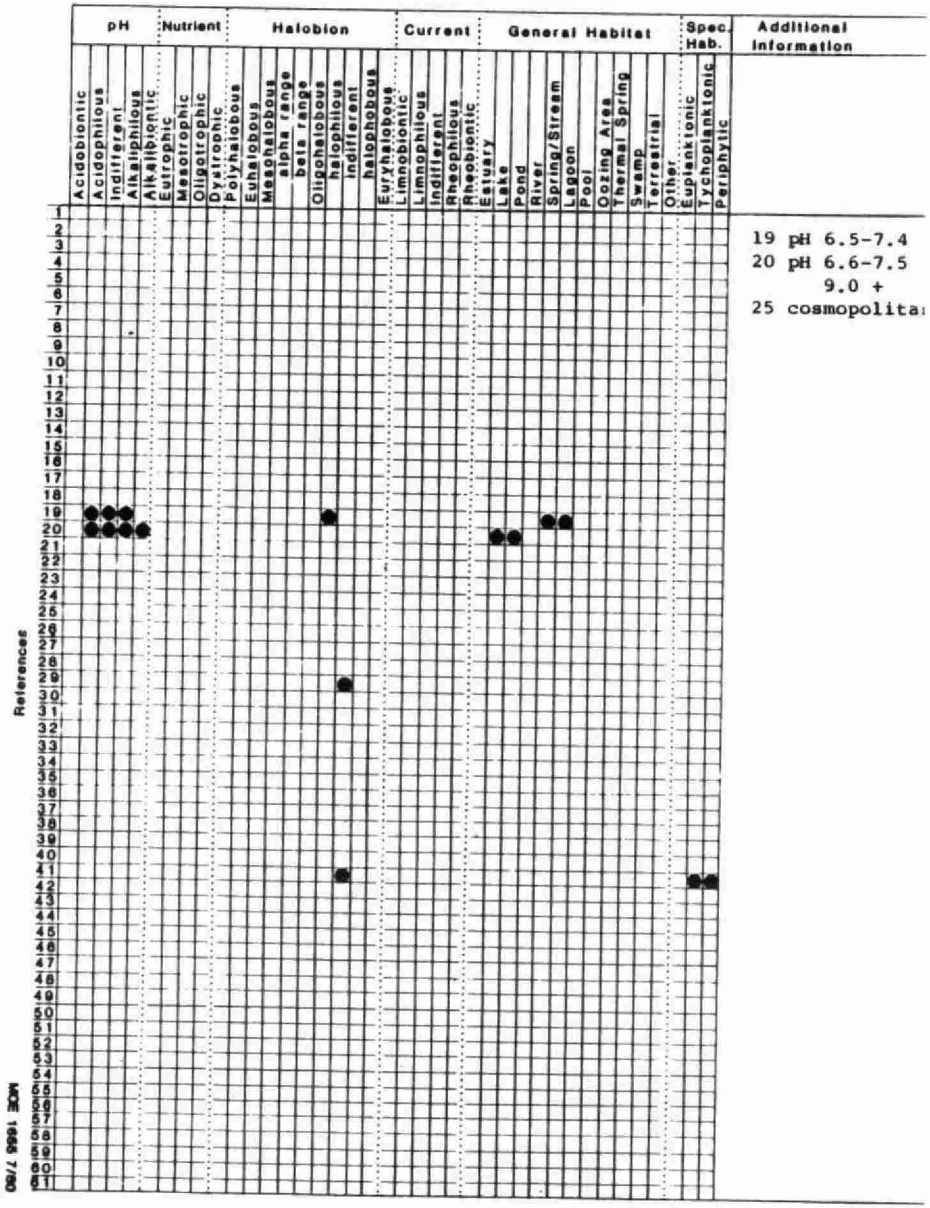
Taxon Nitzschia tryblionella Hantzsch. var. tryblionella

Synonym



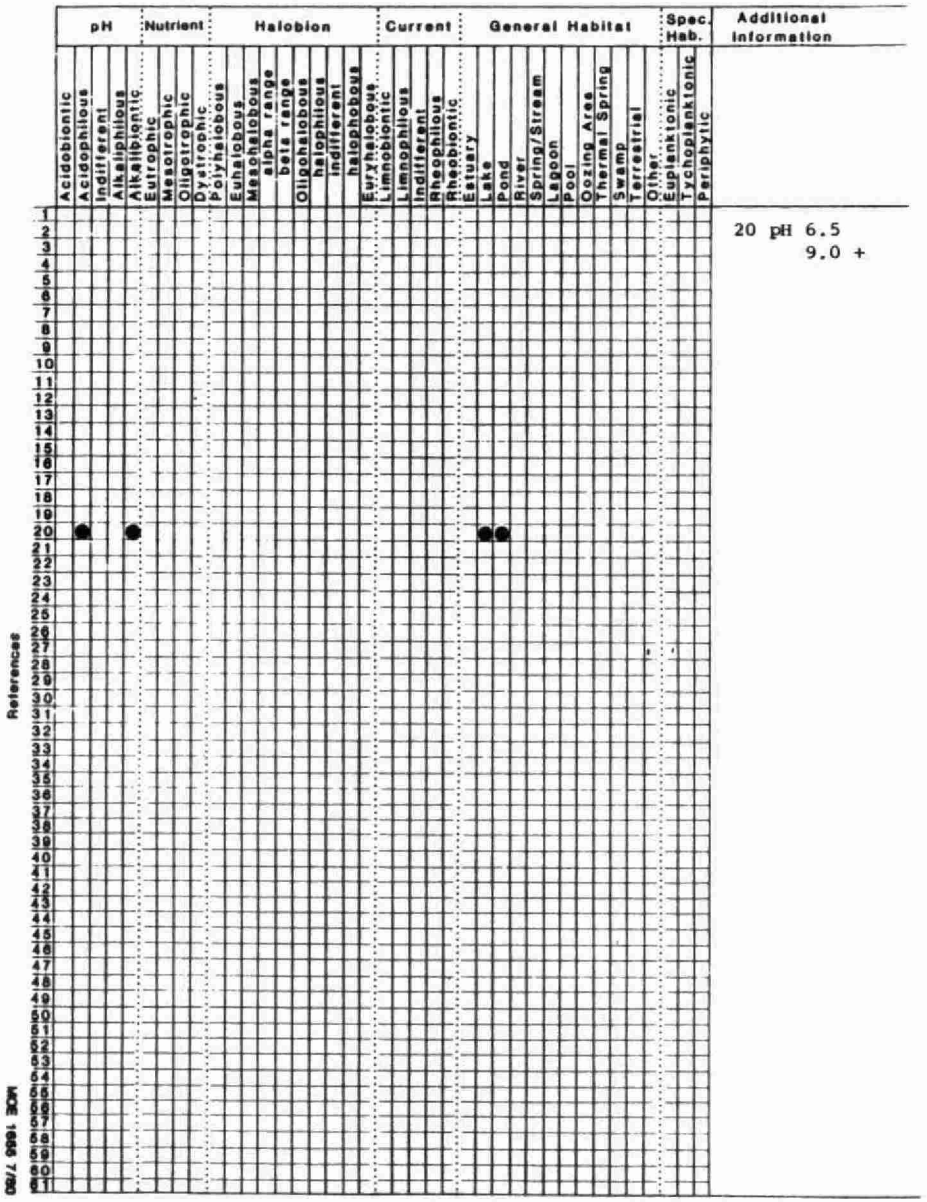
Taxon Nitzschia tryblionella var. victoriae Grun.

Synonym



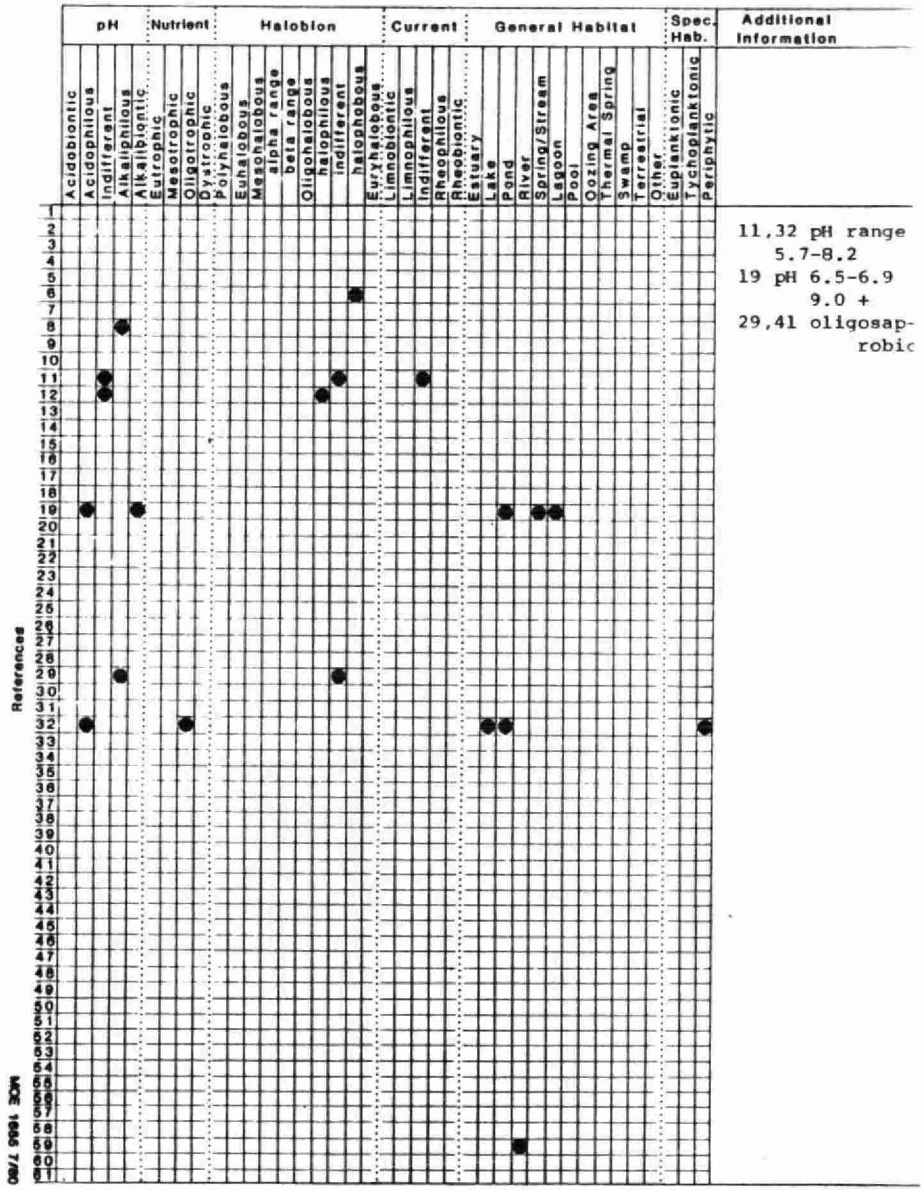
Taxon Nitzschia vacua Hust.

Synonym



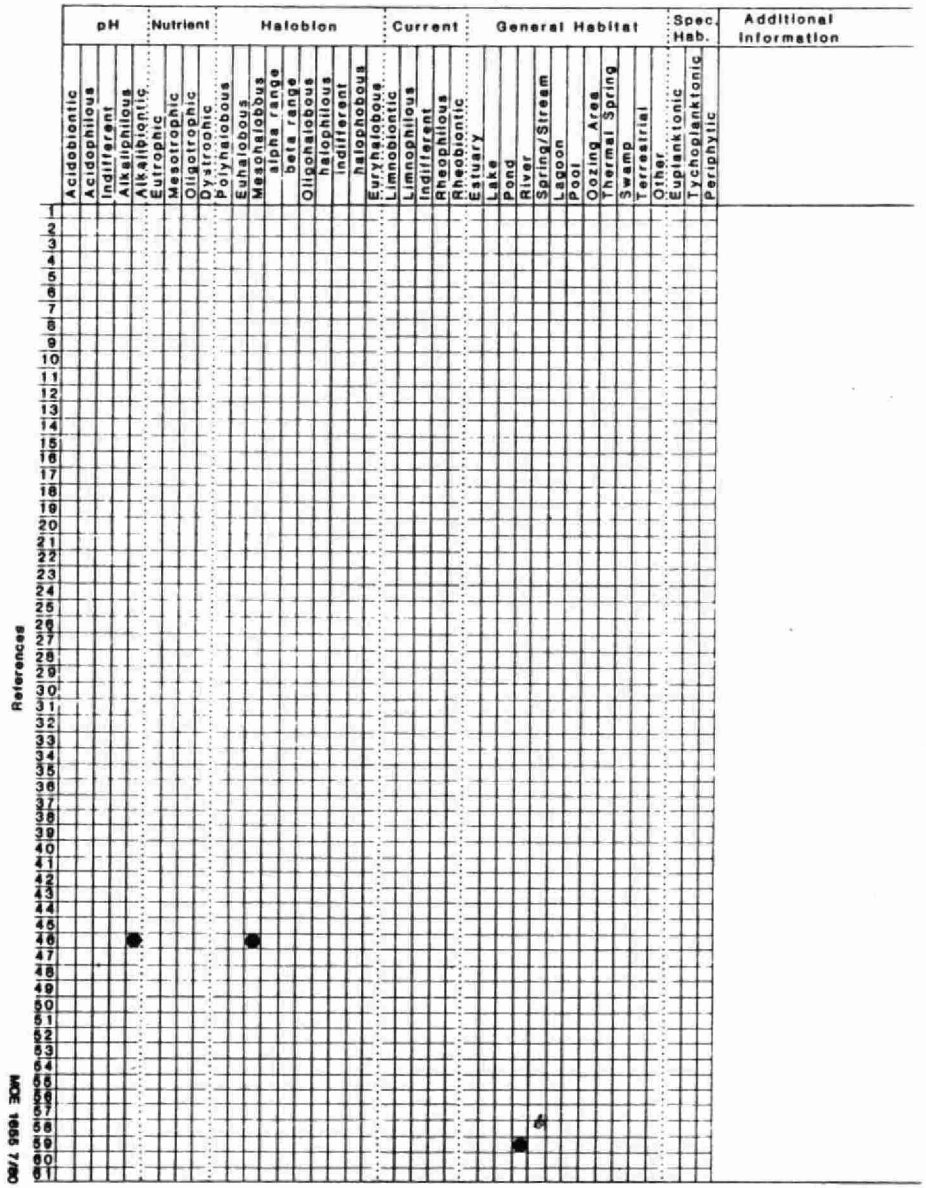
Taxon Nitzschia vermicularis (Kutz.) Grun.

Synonym



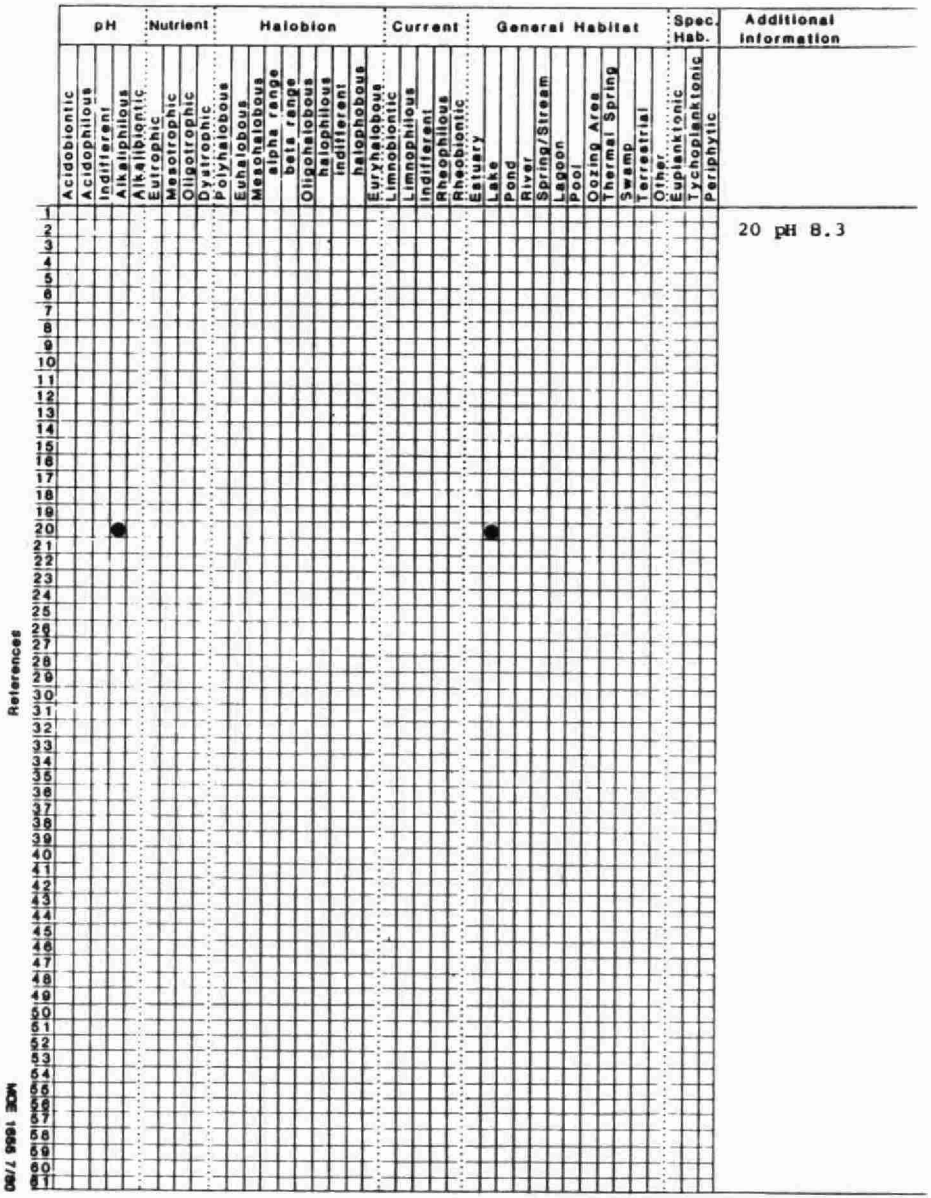
Taxon Nitzschia vitrea var. genuina Grun.

Synonym



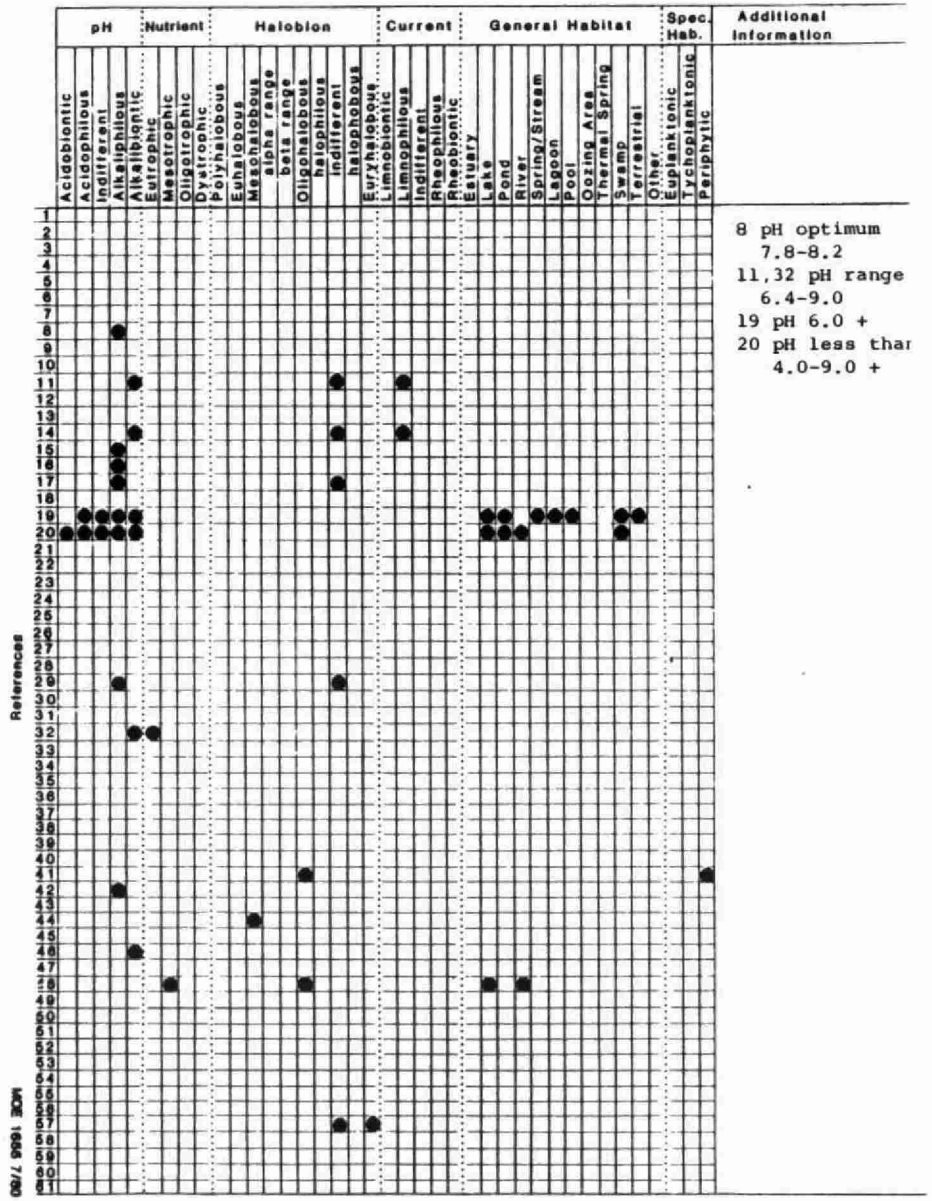
Taxon Oestrupia zachariasi (Reich.) Hust.

Synonym



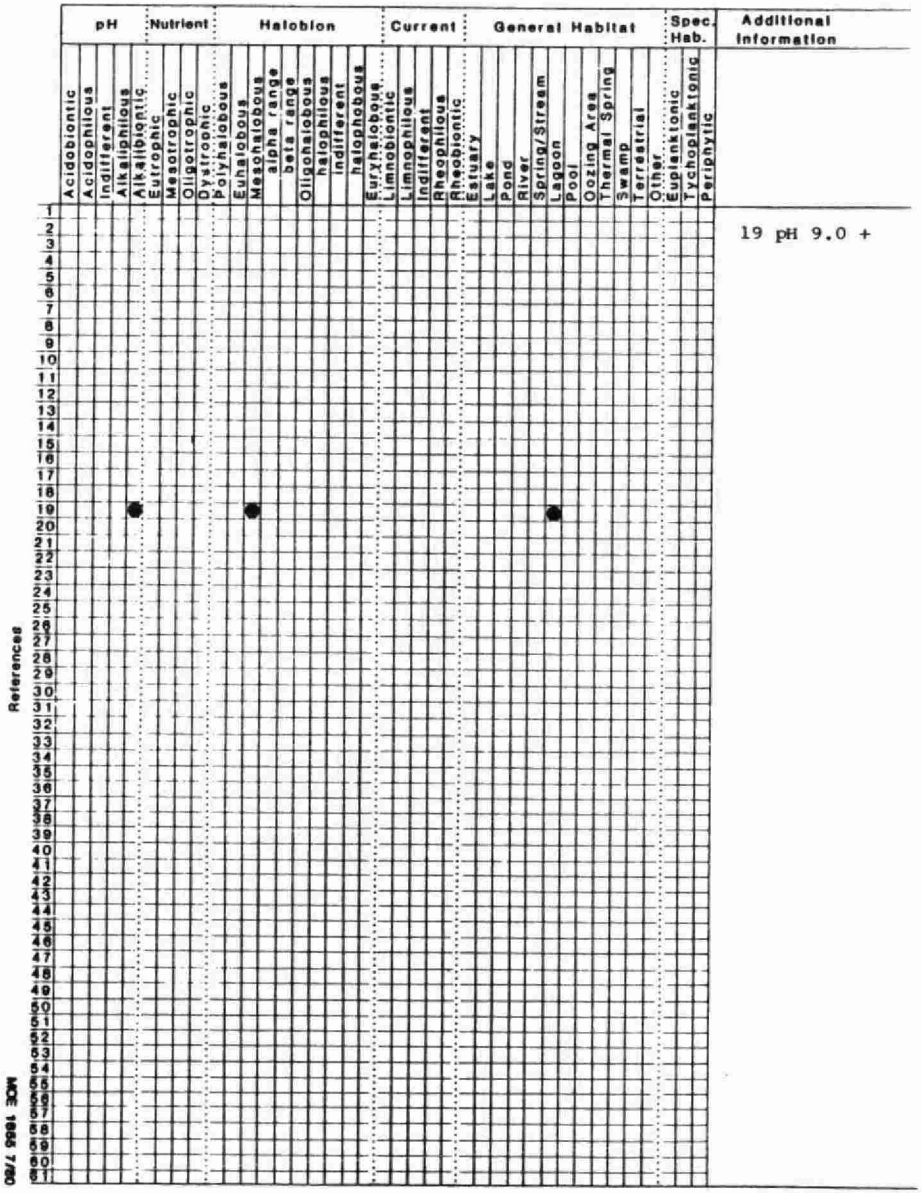
Taxon Opephora martyi Herib.

Synonym



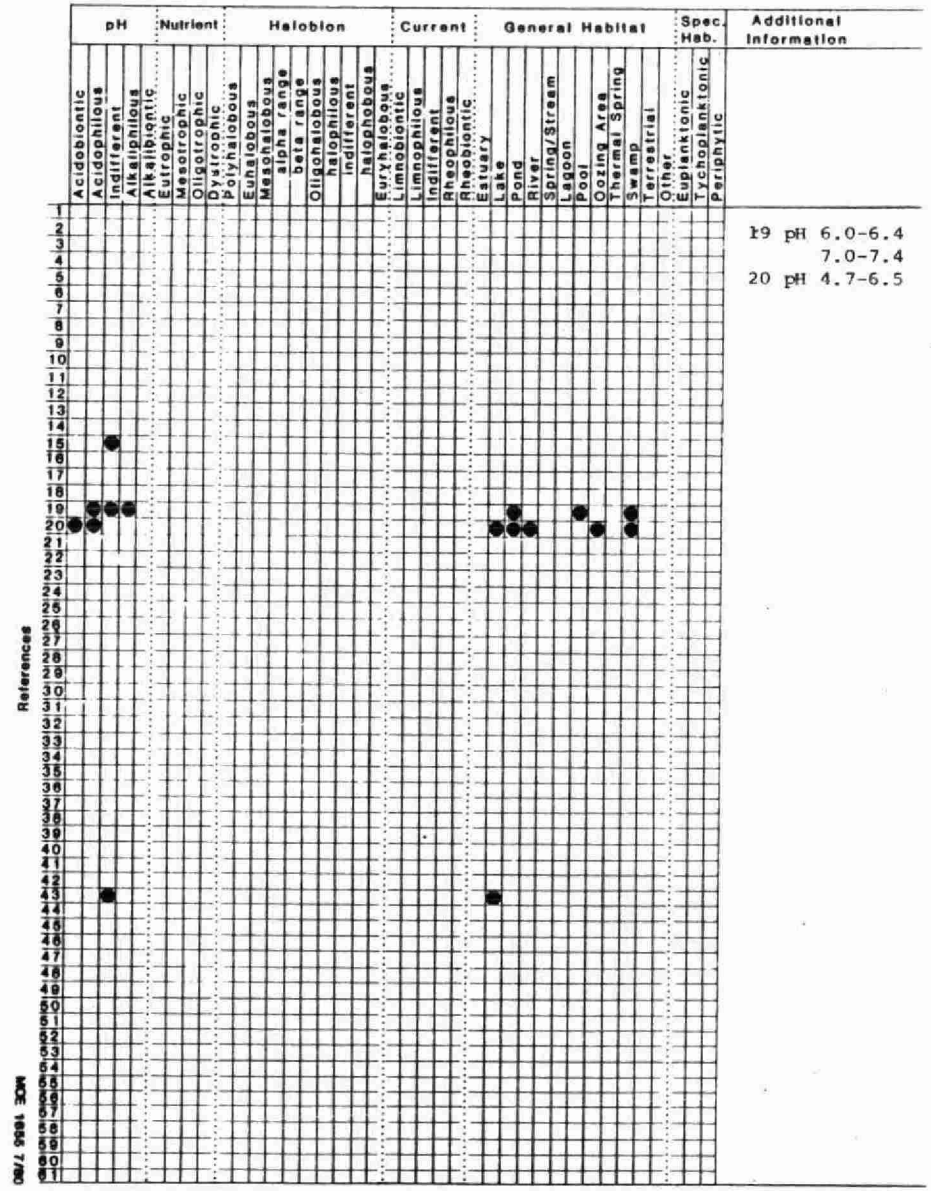
Taxon Opephora pacifica Grun.

Synonym



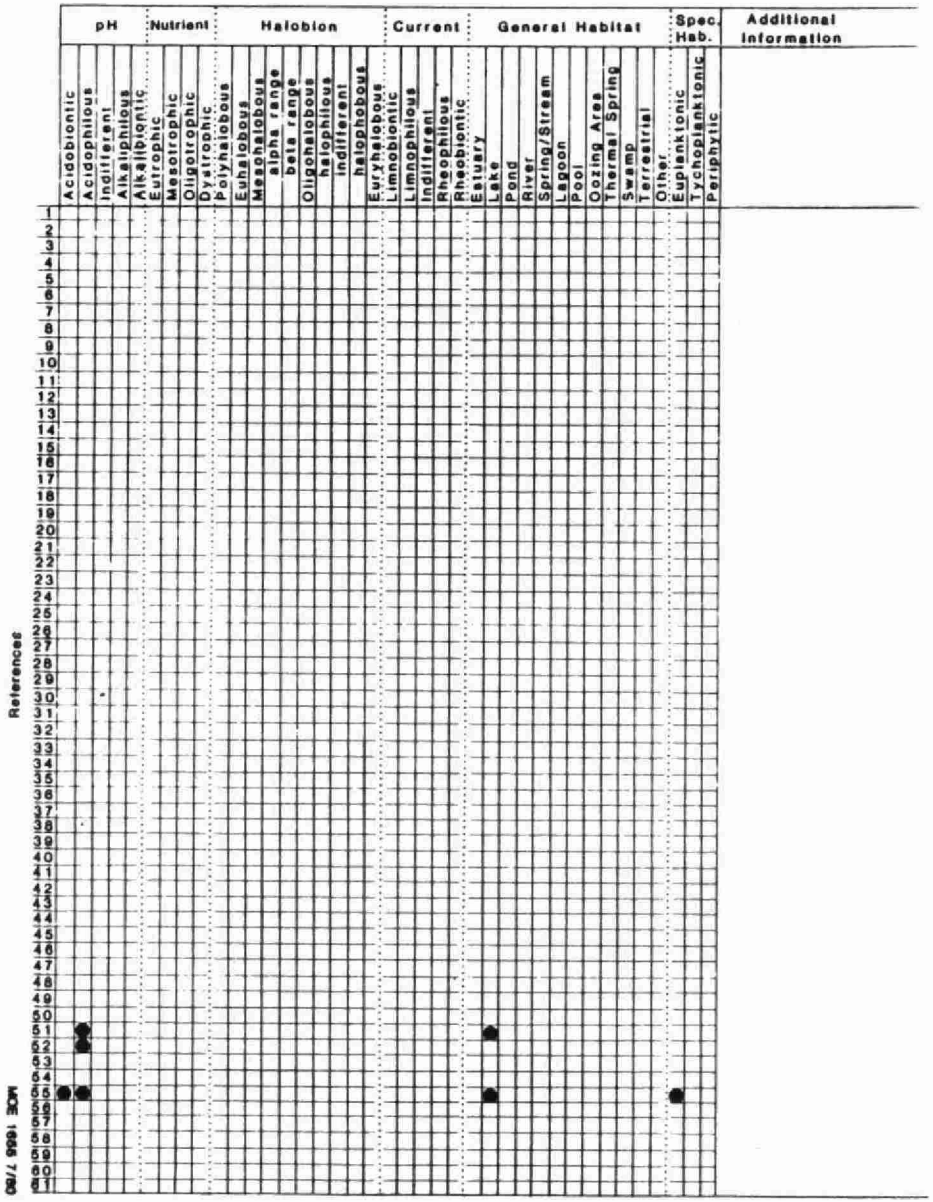
Taxon Peronia heribaudi Brun.& Peraq.

Synonym



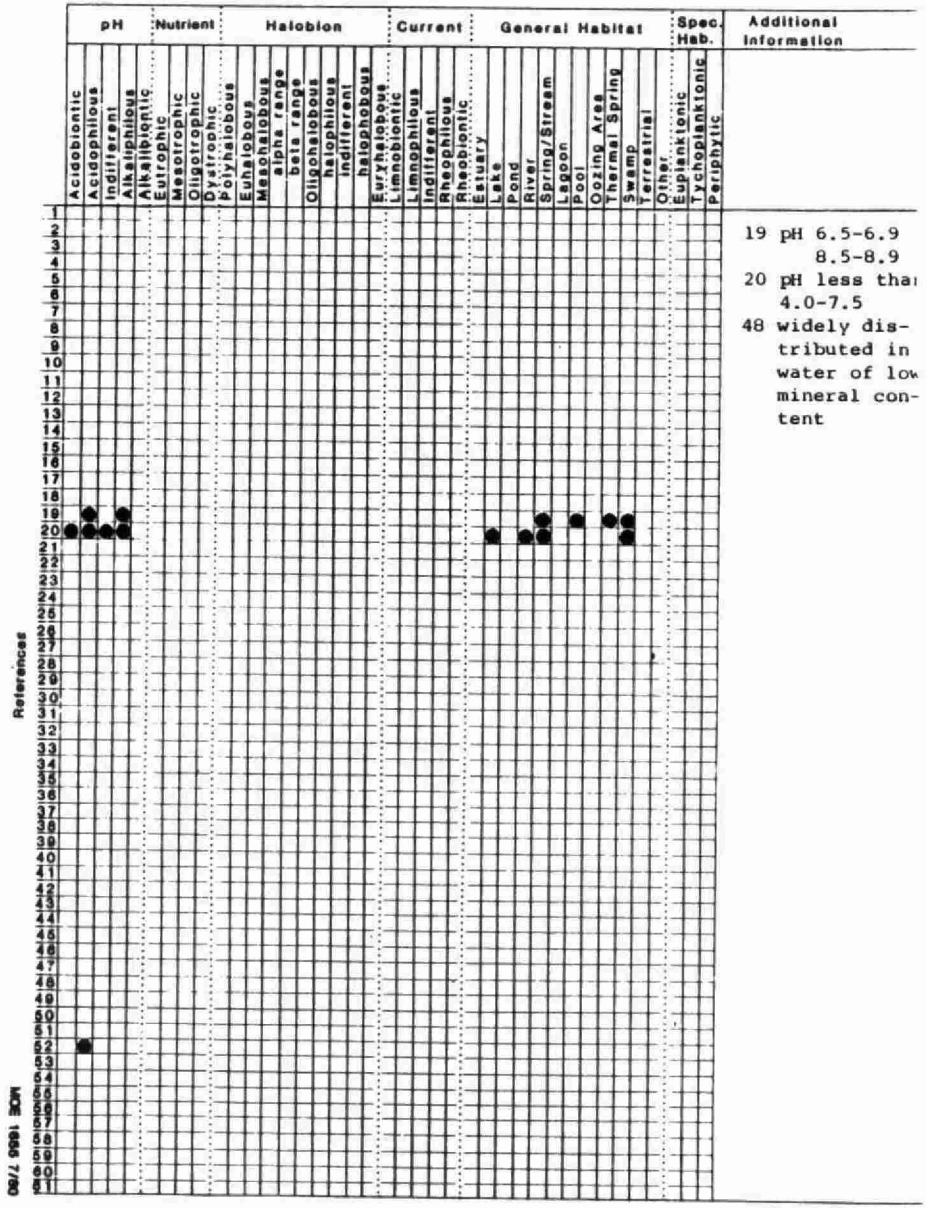
Taxon Pinnularia sp.

Synonym



Taxon Pinnularia abaujensis (Pant.) Ross var. abaujensis

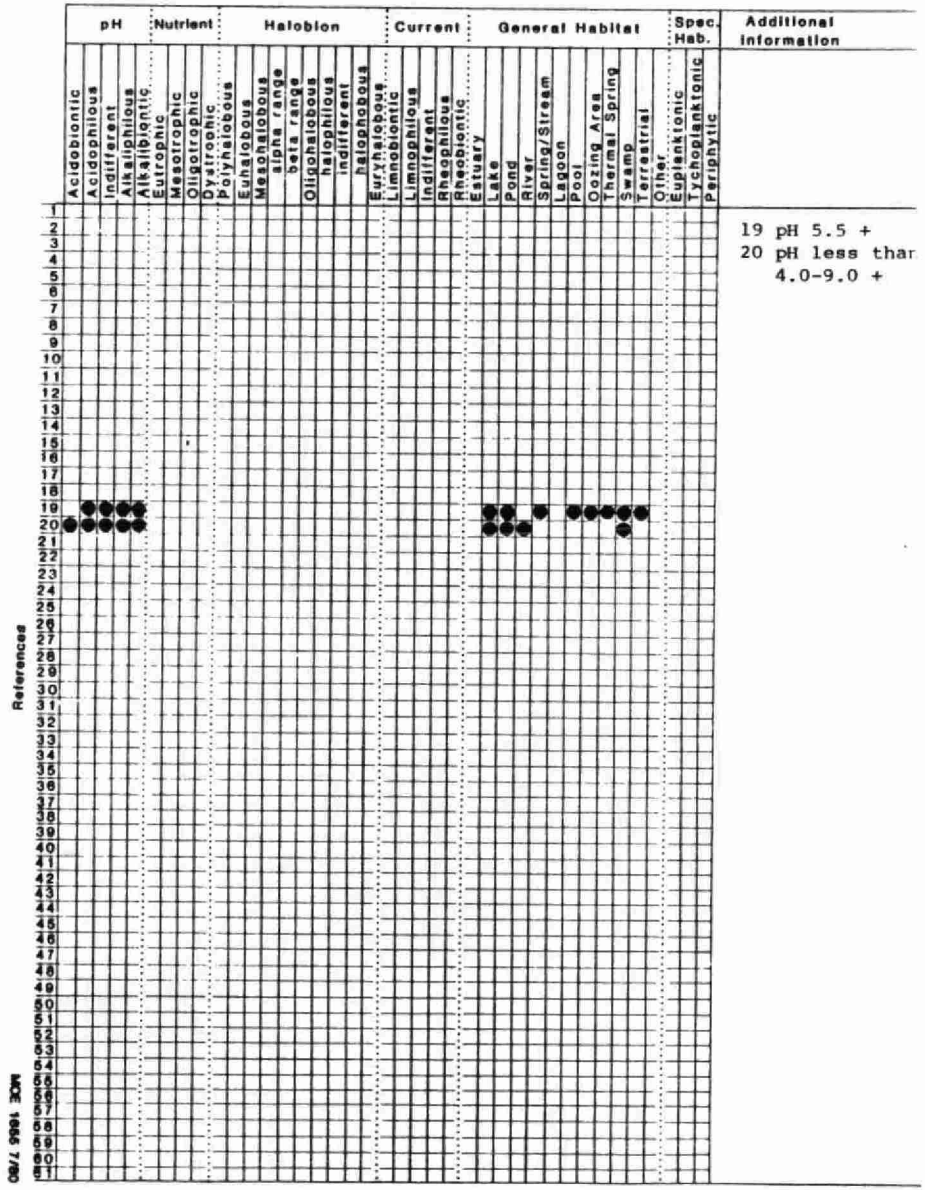
Synonym Pinnularia acrosphaeria (Breb.) Rabh.



19 pH 6.5-6.9
8.5-8.9
20 pH less tha
4.0-7.5
48 widely distributed in water of low mineral content

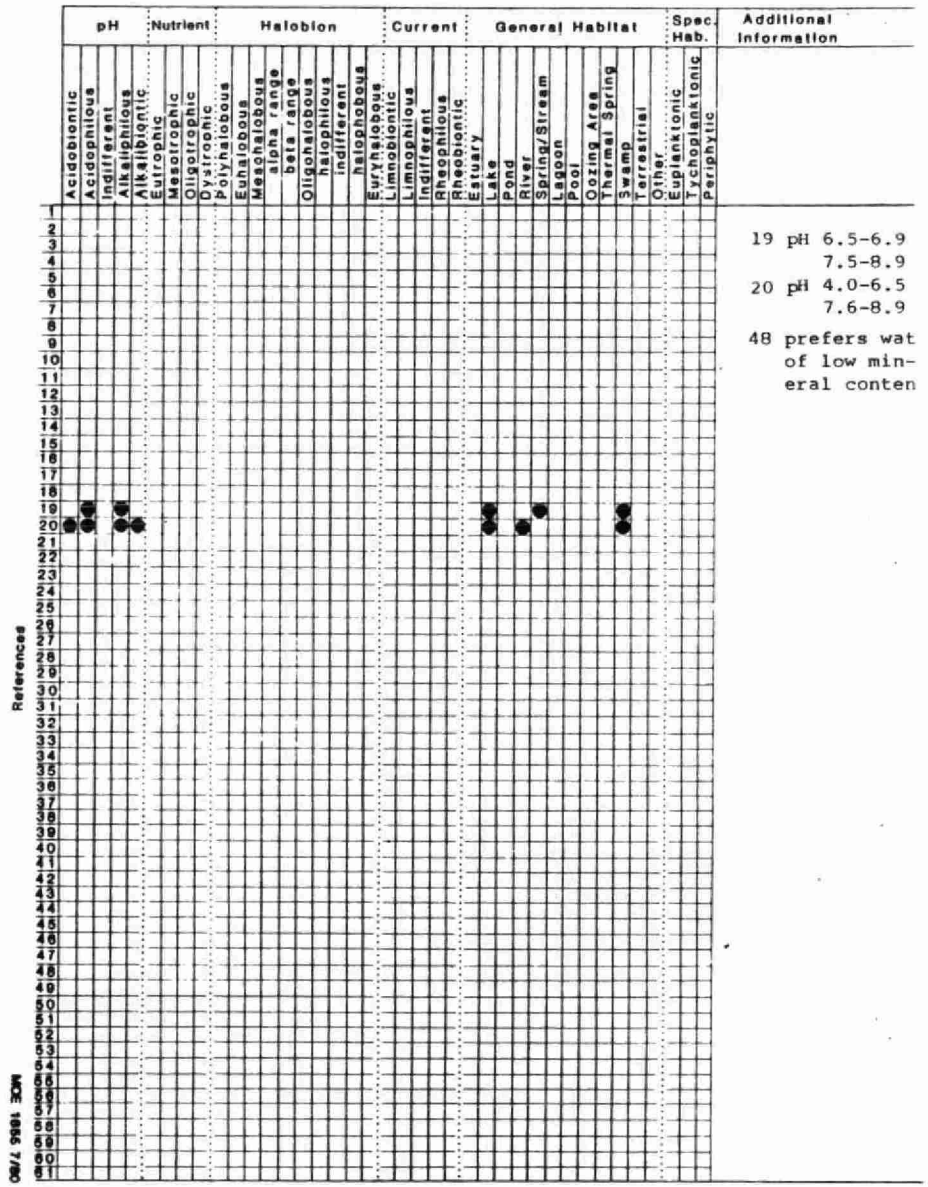
Taxon Pinnularia abaujensis var. linearis (Hust.) Patr.

Synonym Pinnularia gibba var. linearis Hust.



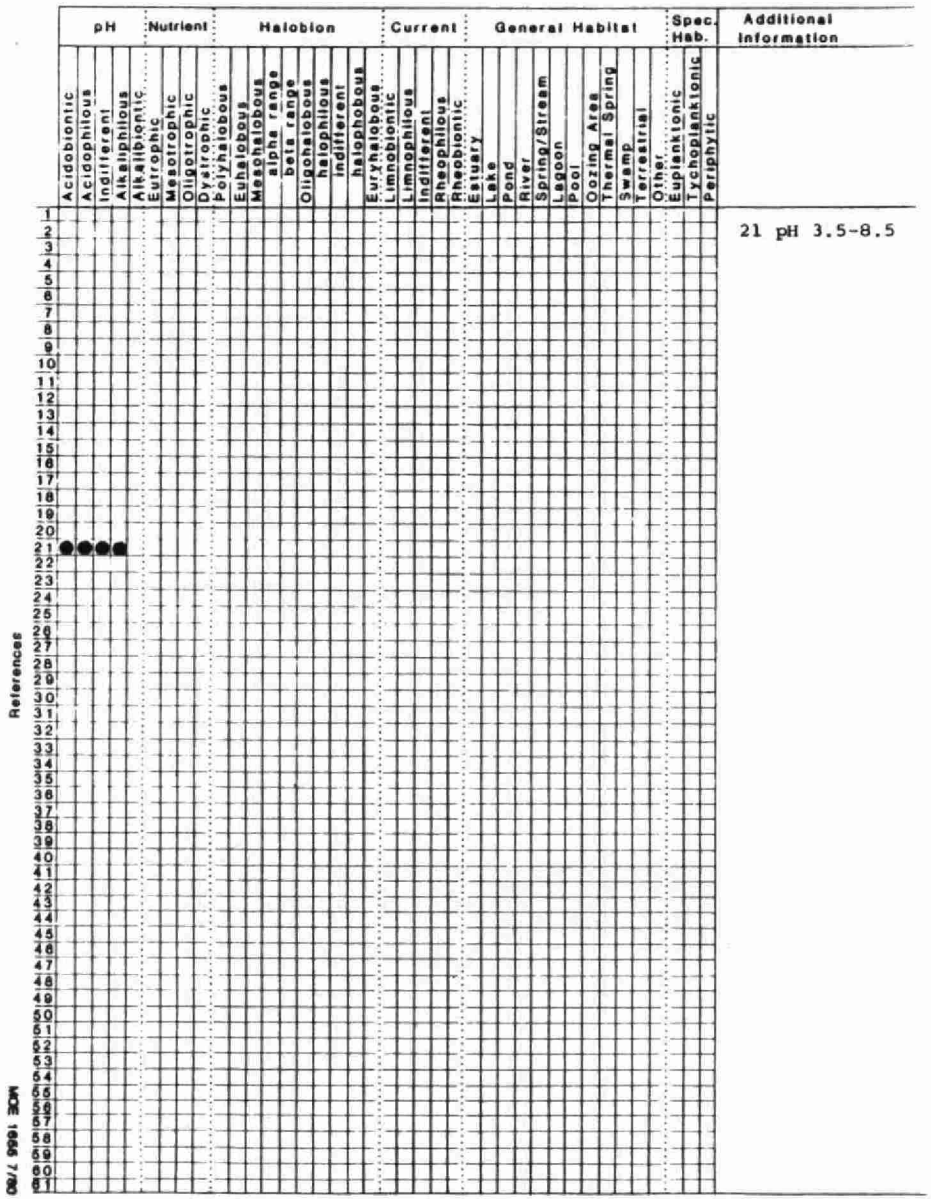
Taxon Pinnularia abaujensis var. subundulata (A.Mayer ex Hust.)Patr

Synonym Pinnularia gibba f. subundulata A.Mayer



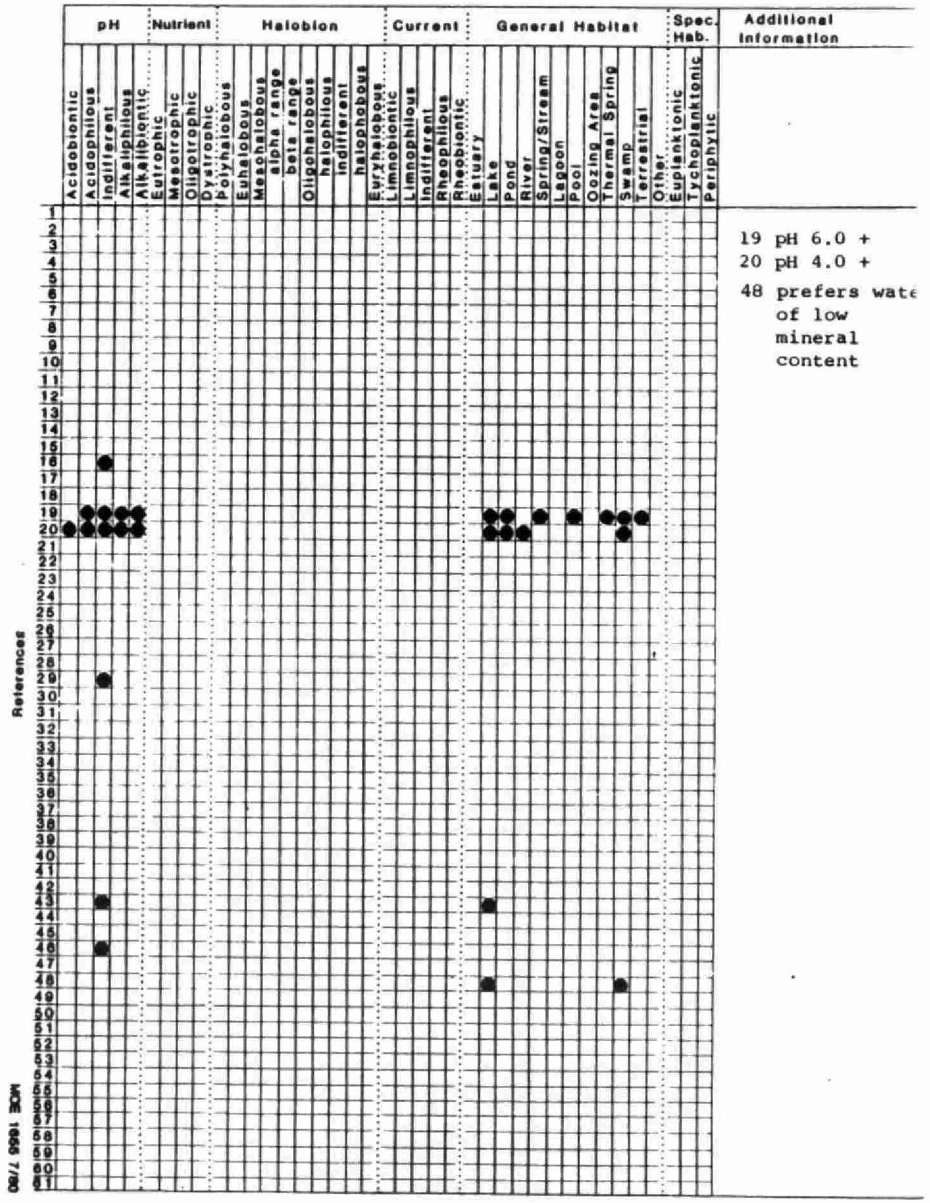
Taxon Pinnularia acoricola Hust.

Synonym



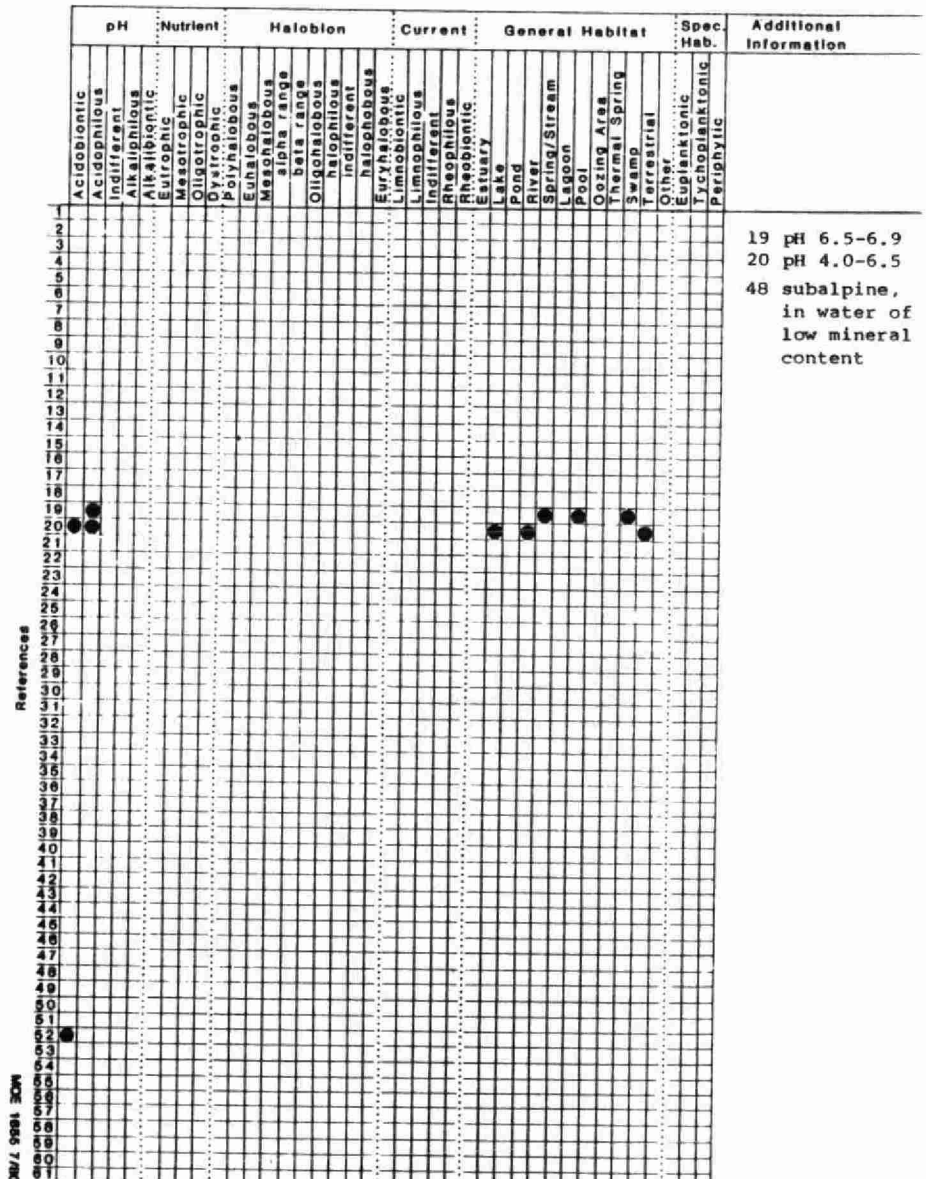
Taxon Pinnularia acuminata W.Sm.

Synonym Pinnularia hemiptera (Kutz.)Cl.



Taxon Pinnularia alpina W. Sm.

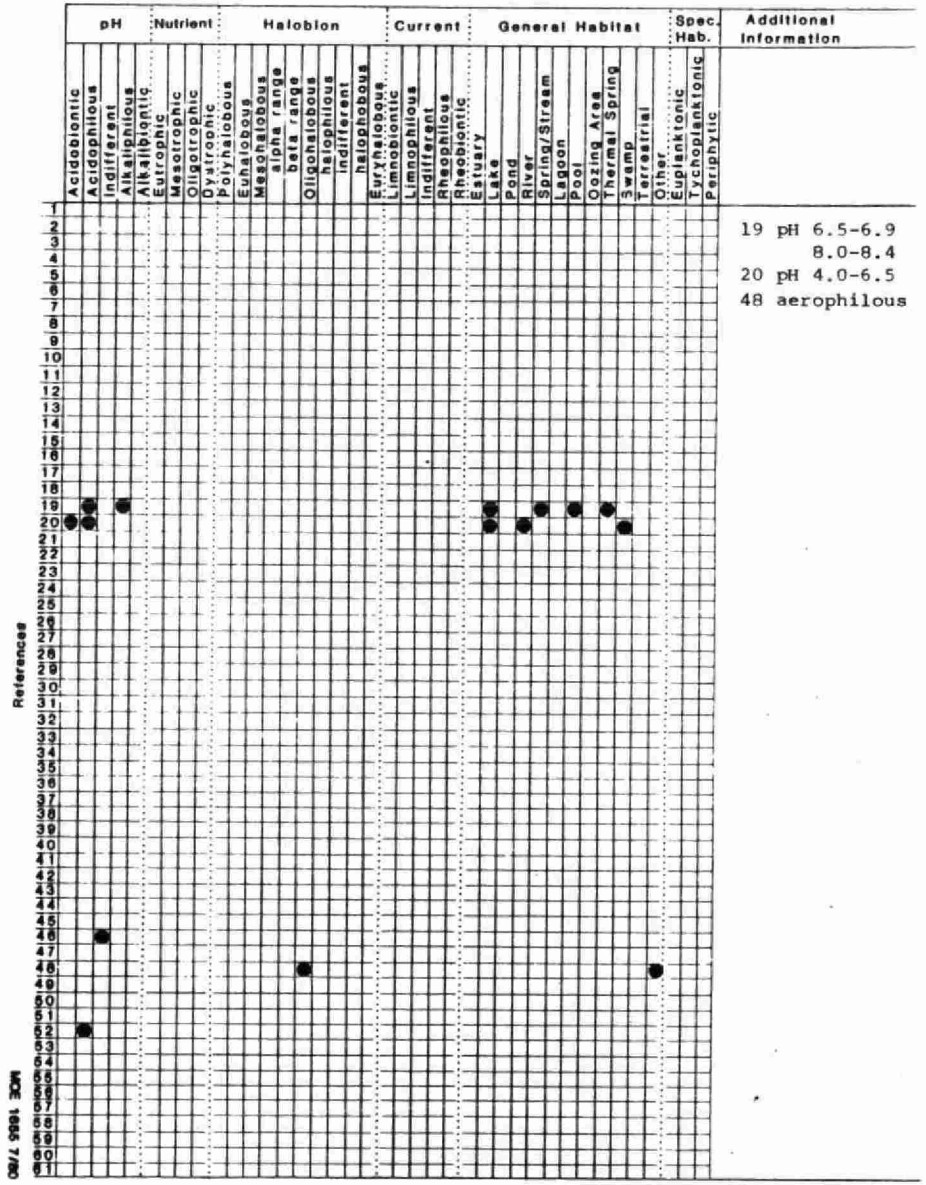
Synonym



19 pH 6.5-6.9
20 pH 4.0-6.5
48 subalpine, in water of low mineral content

Taxon Pinnularia appendiculata (Ag.) Cl. var. appendiculata

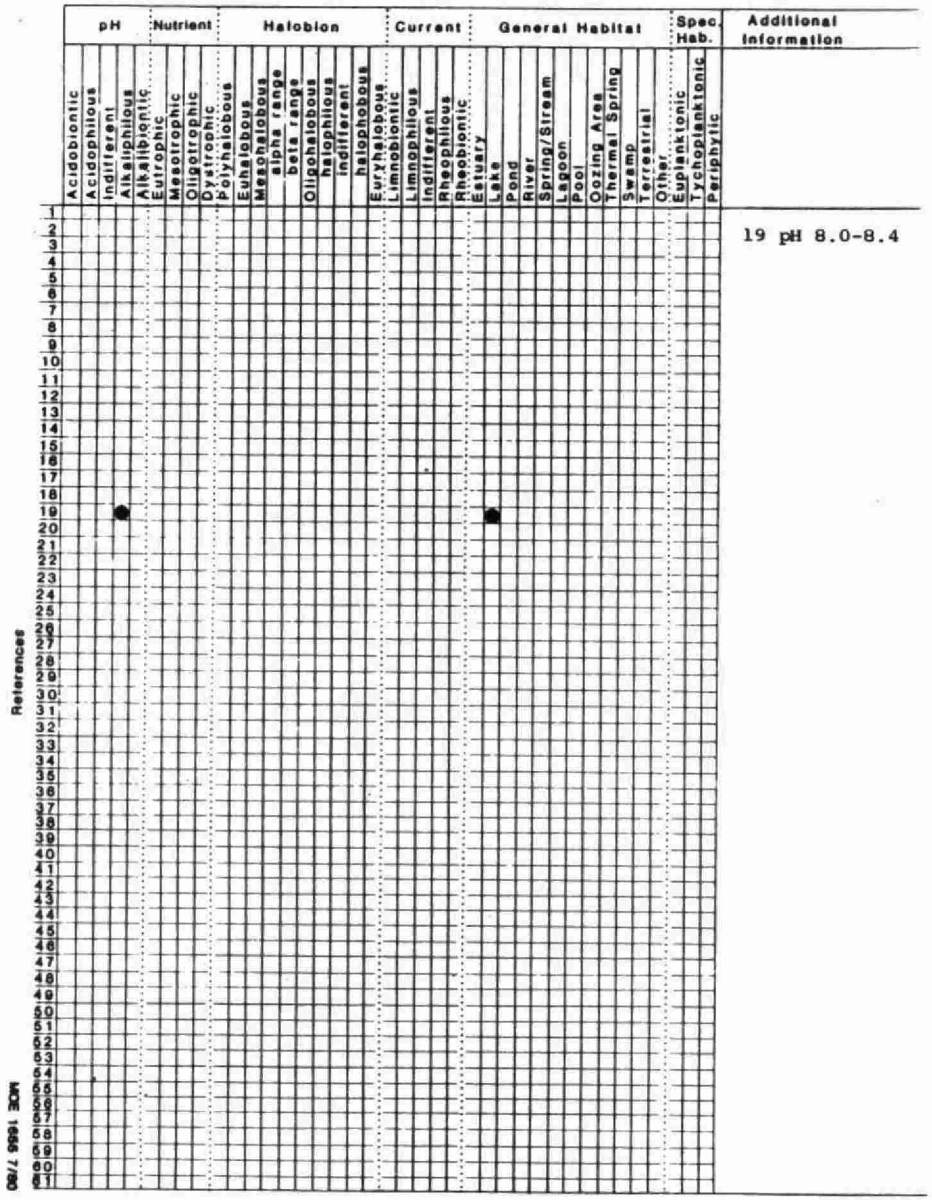
Synonym



19 pH 6.5-6.9
8.0-8.4
20 pH 4.0-6.5
48 aerophilous

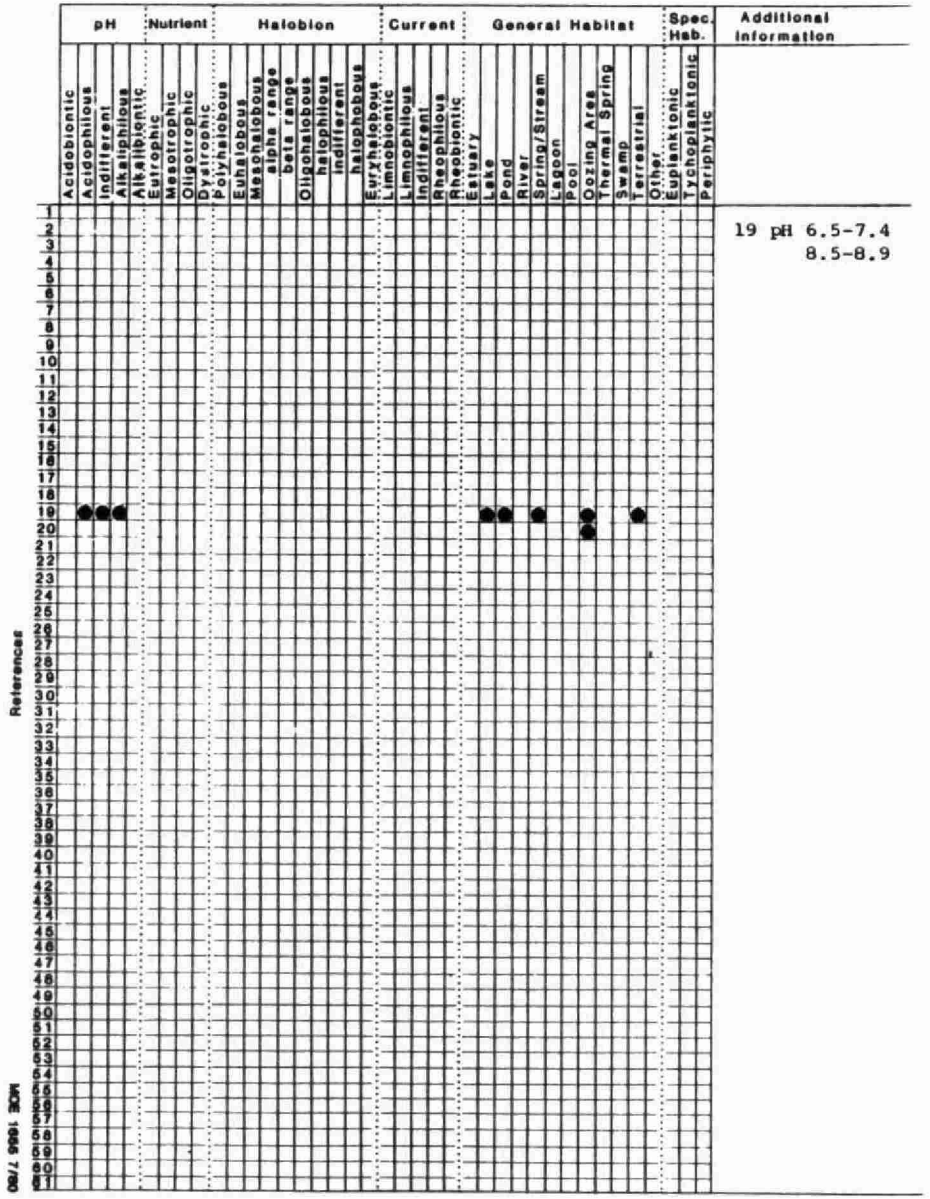
Taxon Pinnularia appendiculata var. irrorata Grun.

Synonym



Taxon Pinnularia balfouriana Grun.

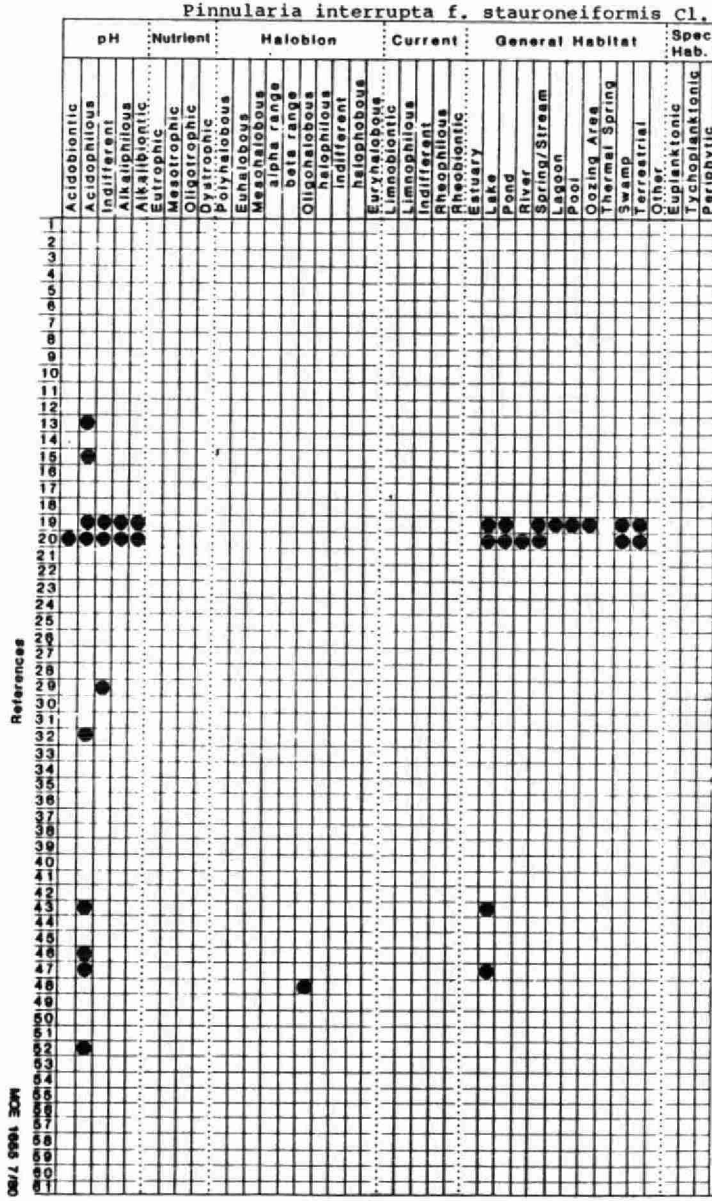
Synonym



Taxon Pinnularia biceps Greg.

Synonym Pinnularia interrupta W. Sm.

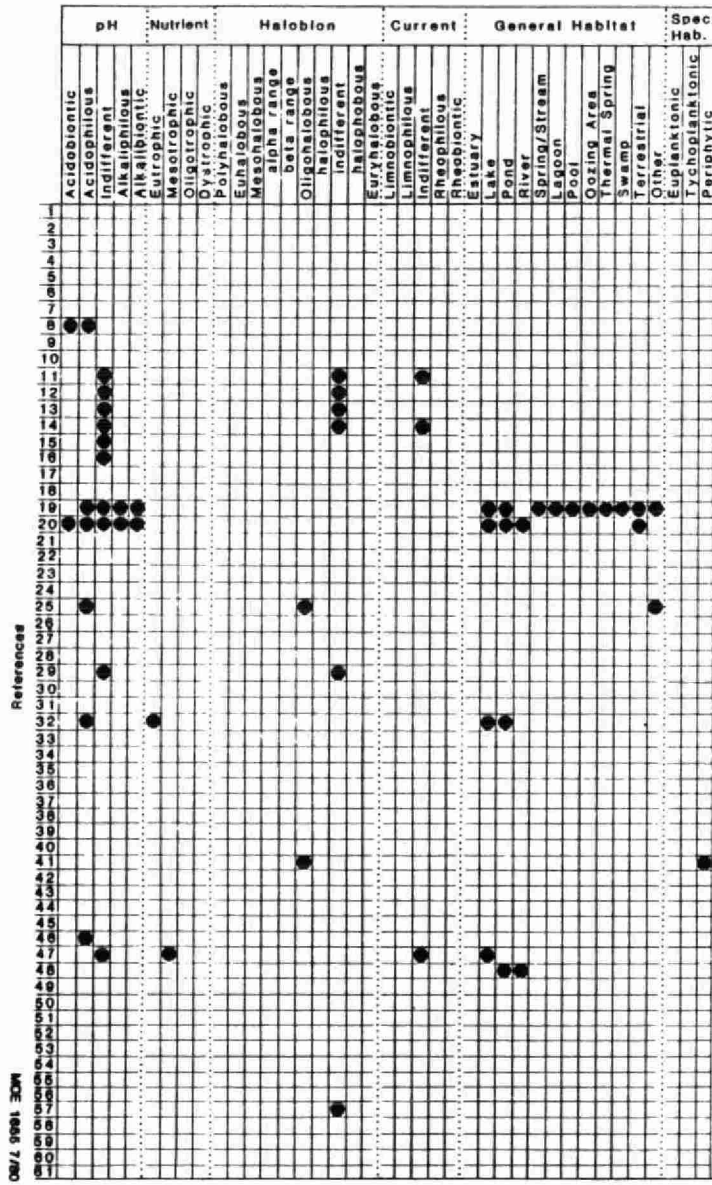
Pinnularia interrupta f. stauroneiformis Cl.



19 pH 5.5 +
20 pH less than 4.0-9.0 +
48 prefers fresh water of low mineral content

Taxon Pinnularia borealis Ehr. var. borealis

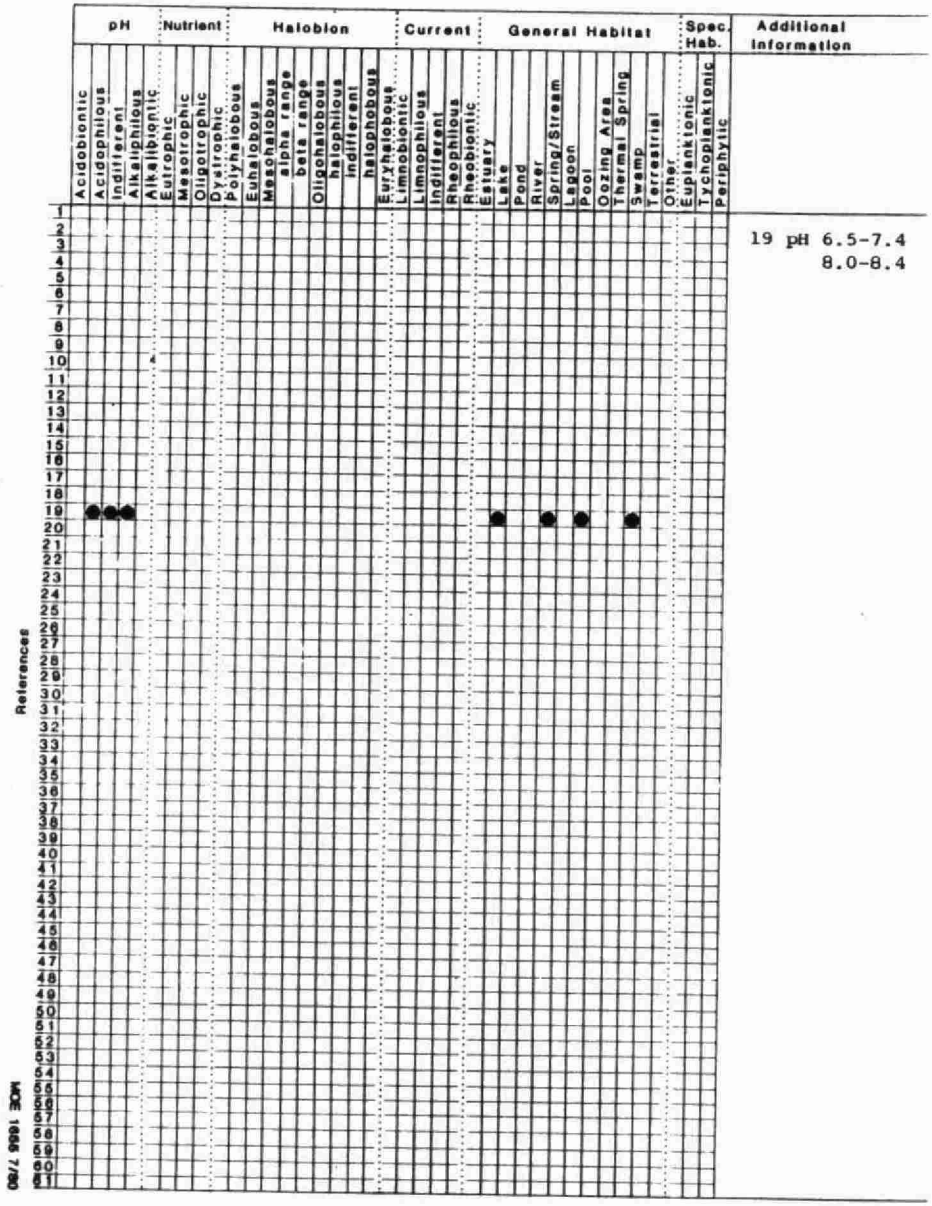
Synonym



8 pH optimum less than 6
11,25,32 pH range 4-8
19 pH 5.5 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitan
29 oligosaprobic
47,48 oligothermal
48 in water of low mineral content
19 aerophilous
25 aerophilous

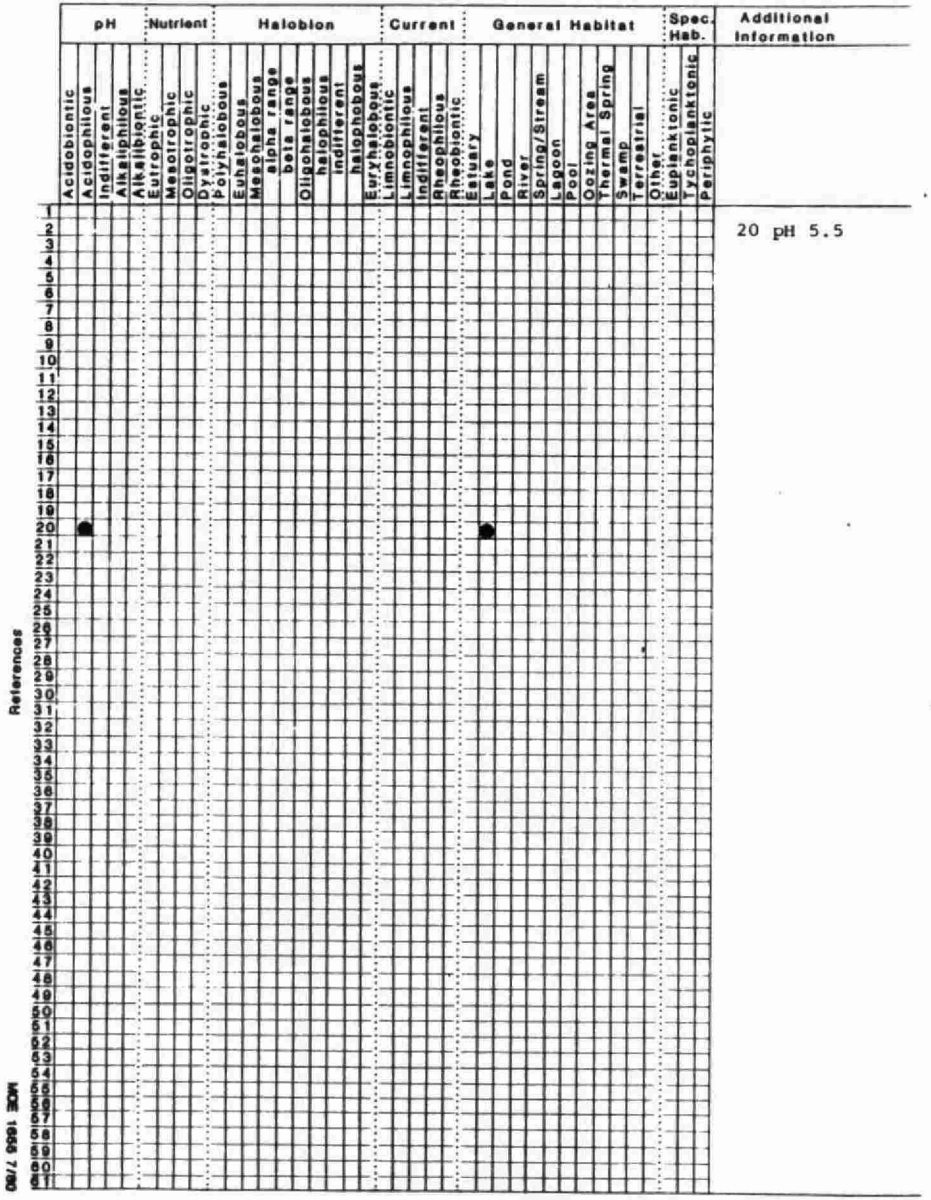
Taxon Pinnularia borealis var. brevicostata Hust.

Synonym



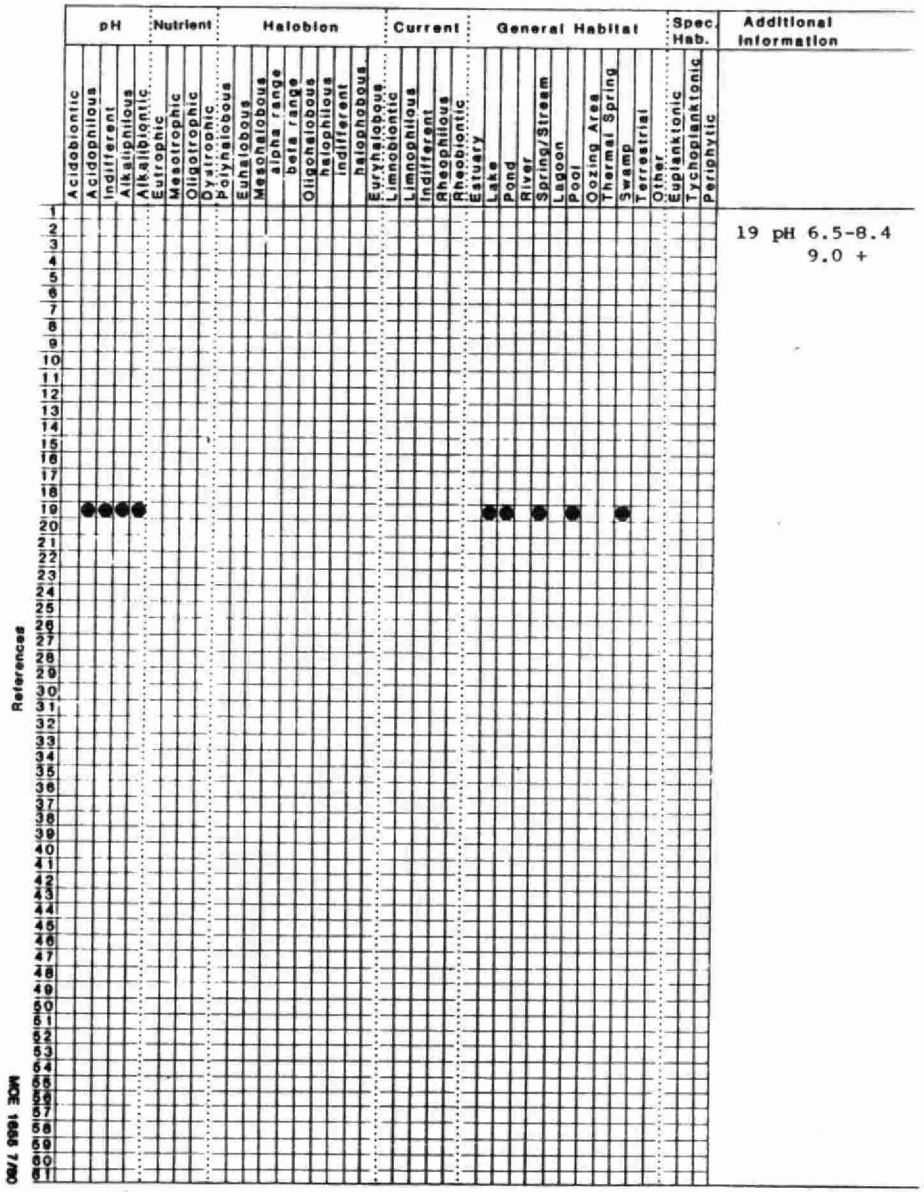
Taxon Pinnularia borealis var. brevistriata Hust.

Synonym



Taxon Pinnularia brandelii Cl.

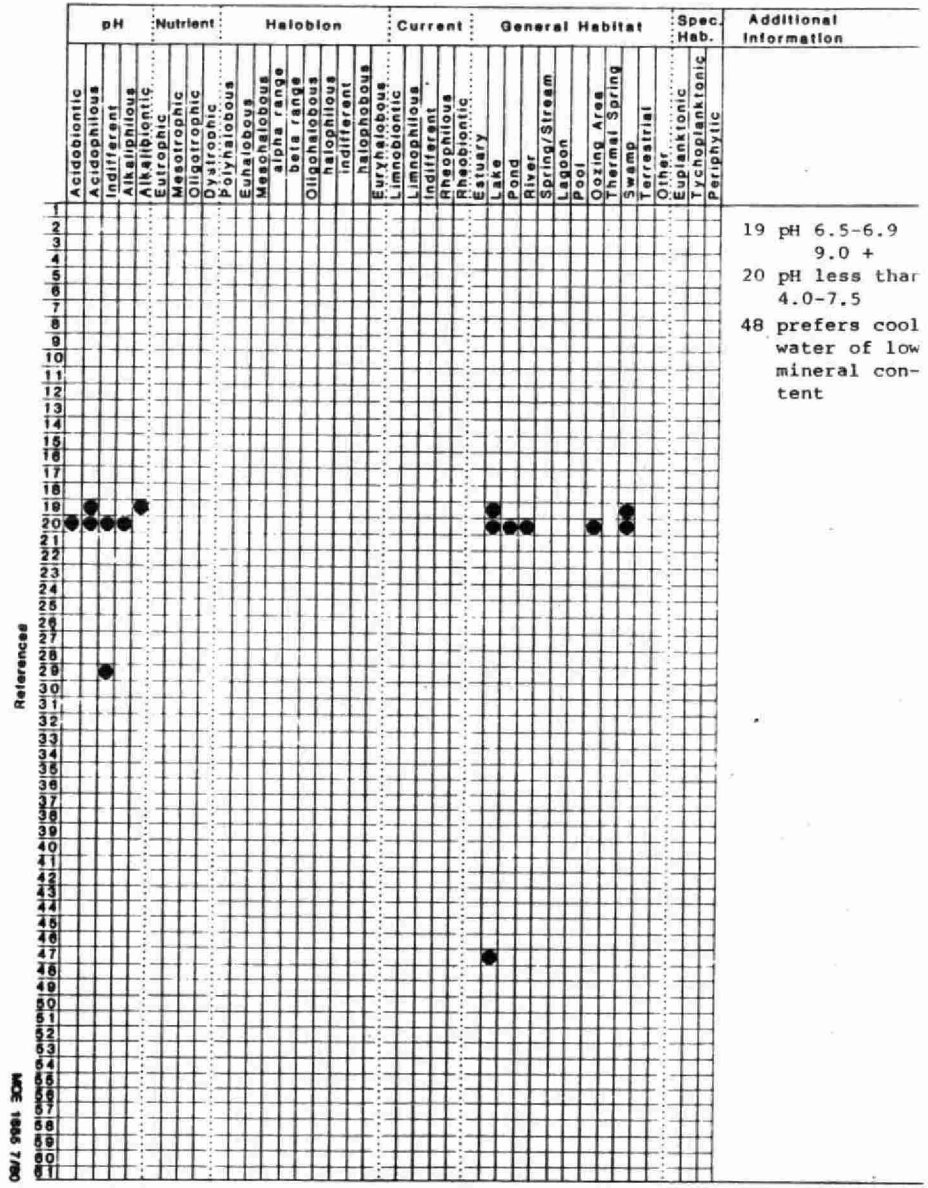
Synonym



19 pH 6.5-8.4
9.0 +

Taxon Pinnularia braunii var. amphicephala (A. Mayer) Hust.

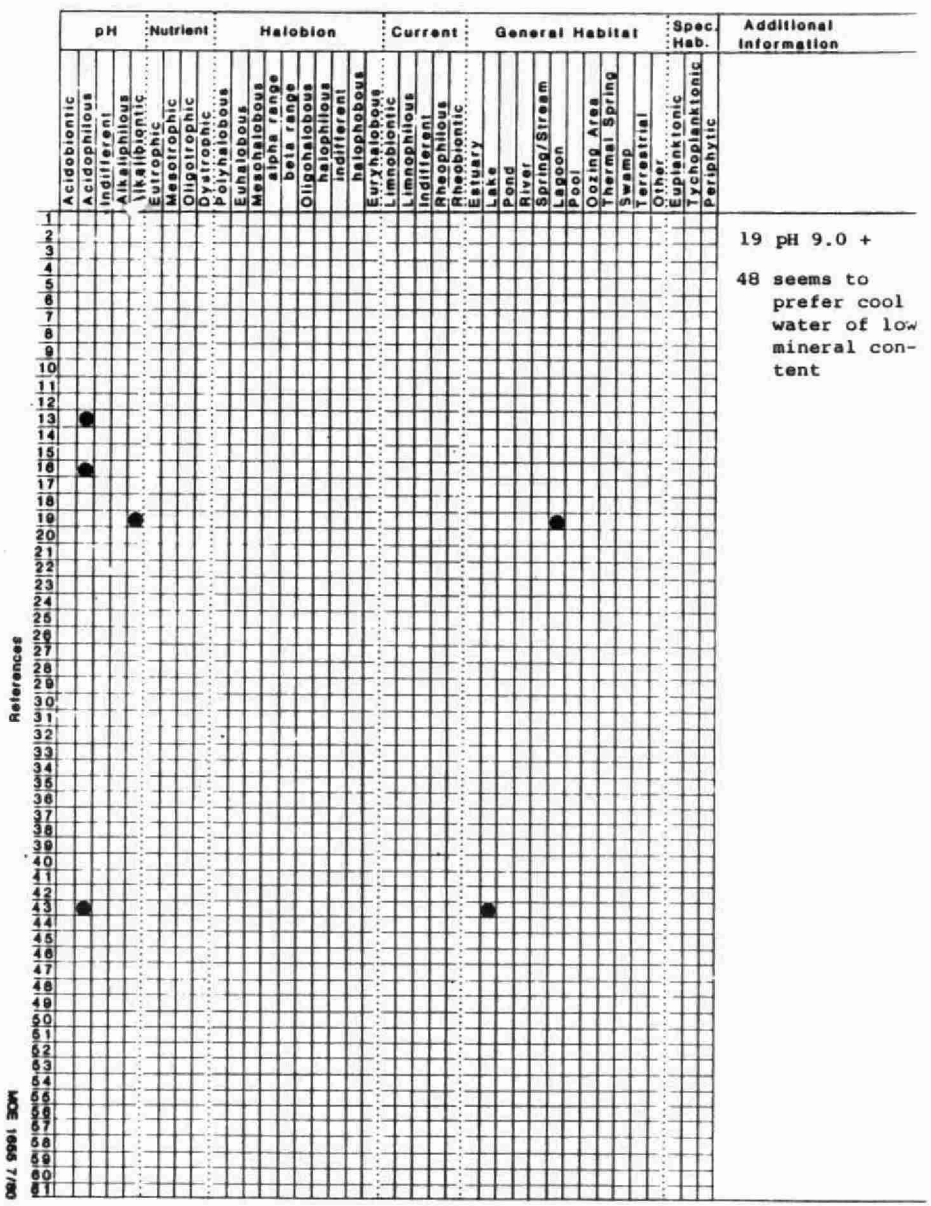
Synonym



19 pH 6.5-6.9
9.0 +
20 pH less than 4.0-7.5
48 prefers cool water of low mineral content

Taxon Pinnularia braunii (Grun.) Cl. var. braunii

Synonym

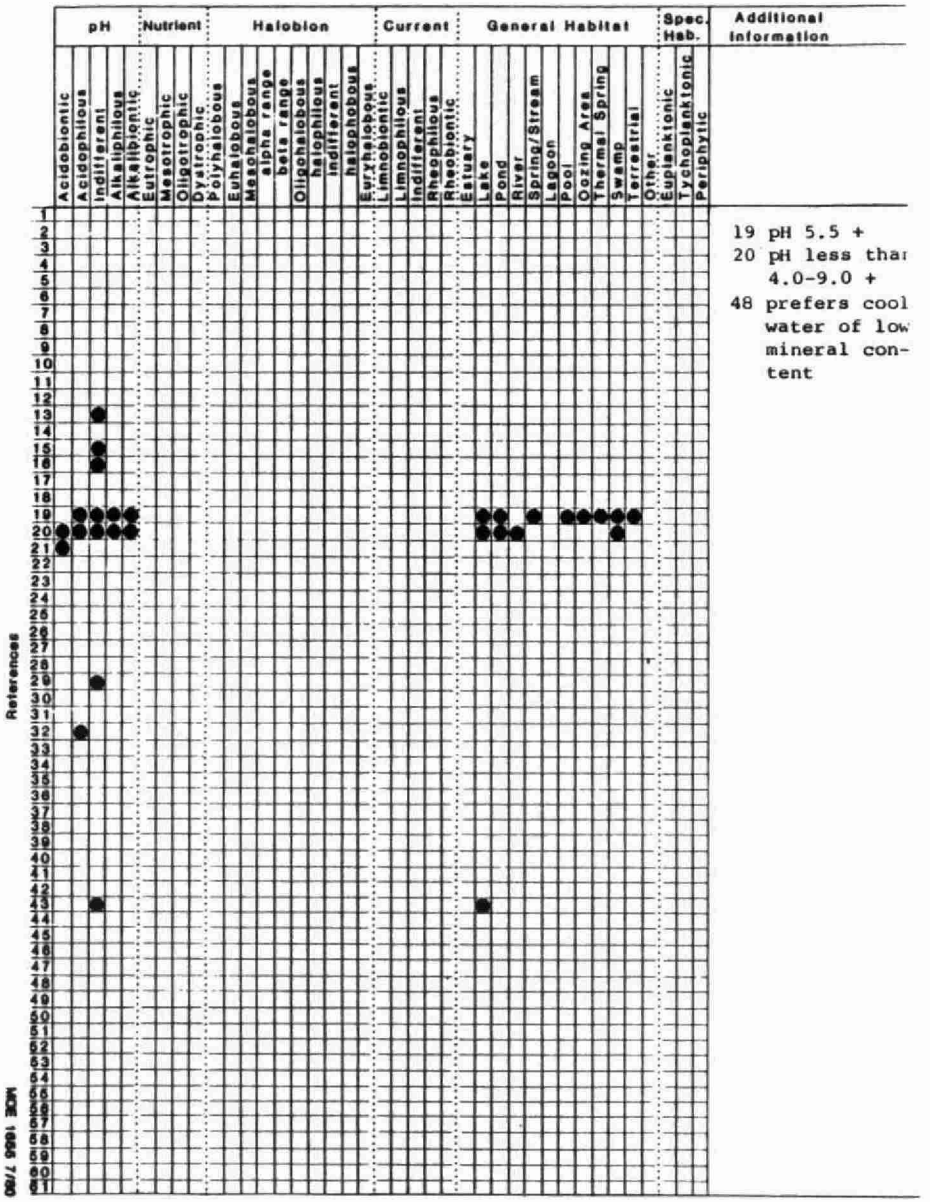


19 pH 9.0 +

48 seems to prefer cool water of low mineral content

Taxon Pinnularia brebissonii (Kutz.) Rabh. var. brebissonii

Synonym Pinnularia microstauron var. brebissonii (Kutz.) Hust.



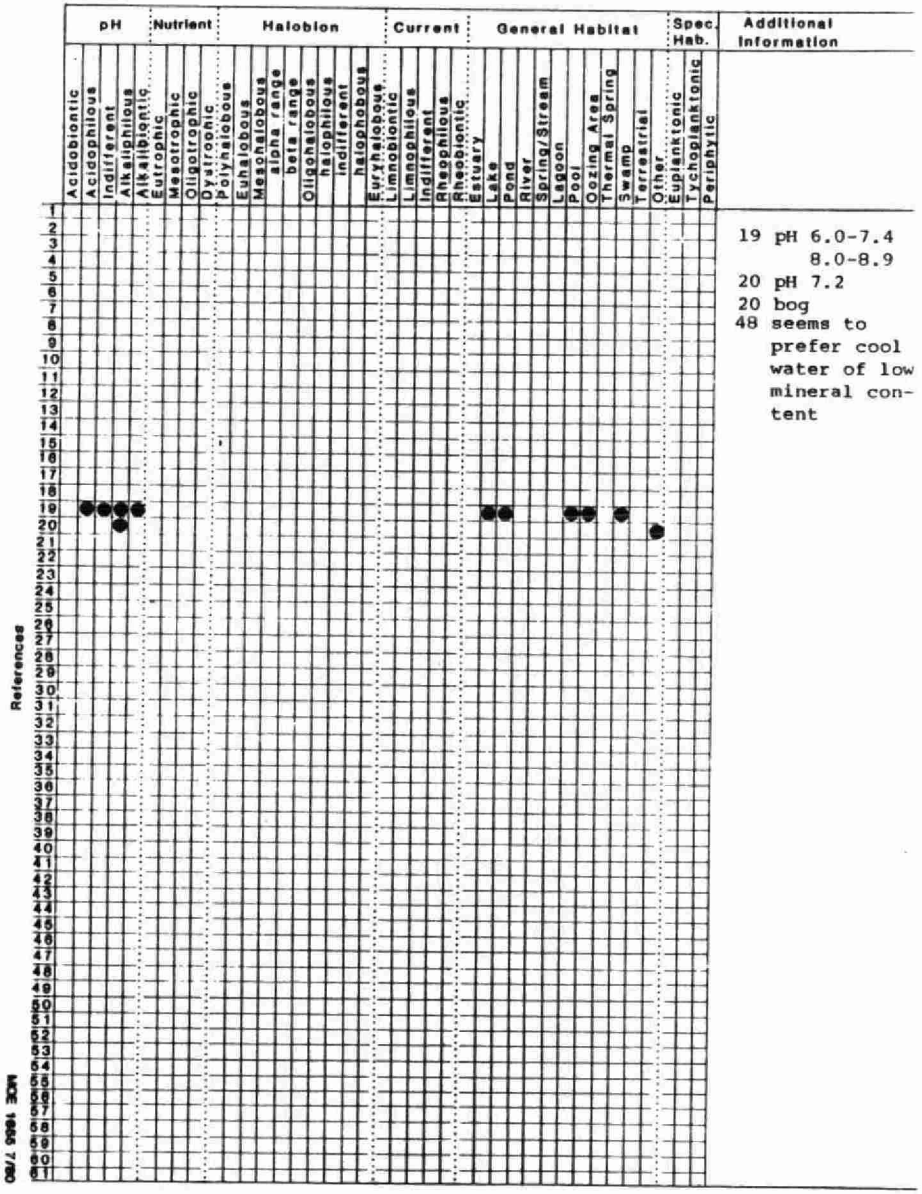
19 pH 5.5 +

20 pH less than 4.0-9.0 +

48 prefers cool water of low mineral content

Taxon Pinnularia brevicostata Cl.

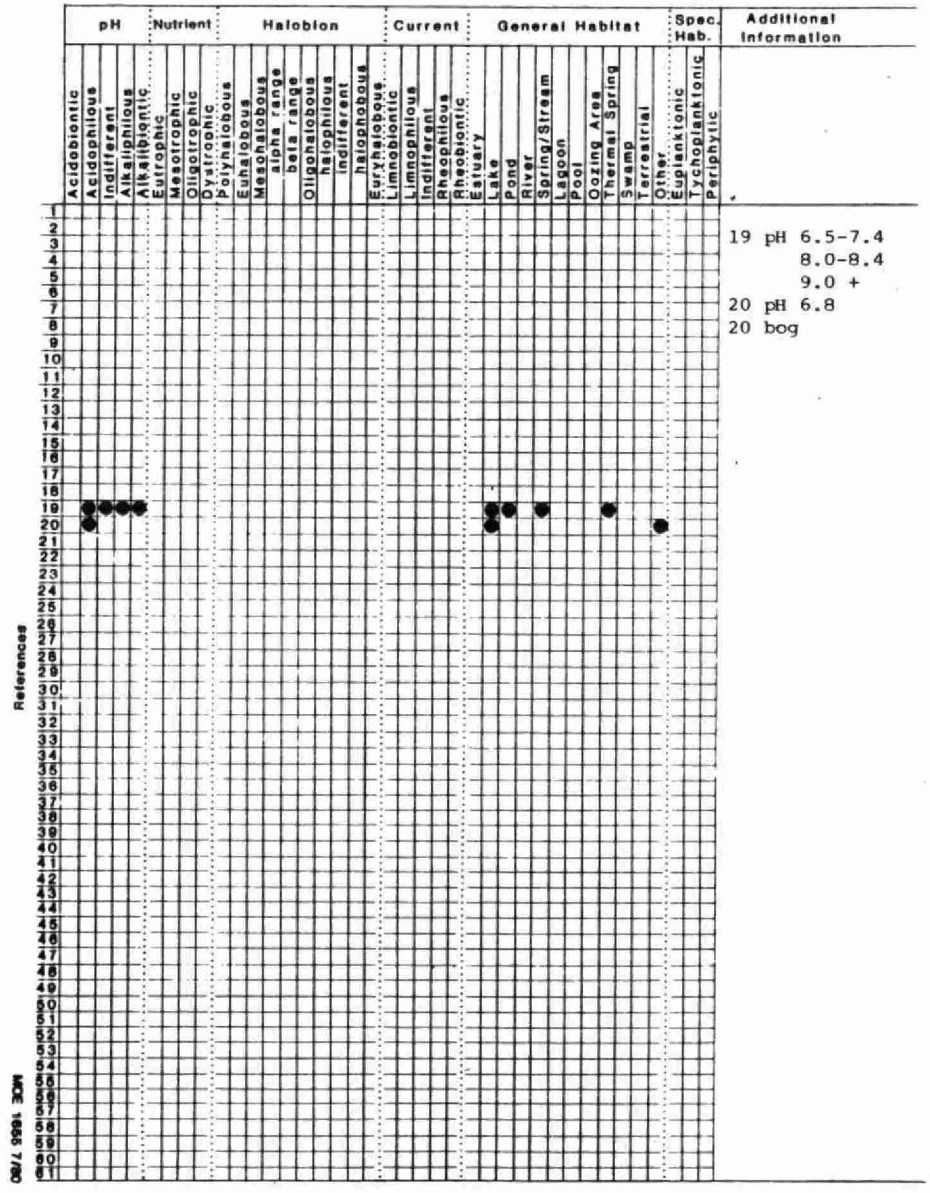
Synonym



19 pH 6.0-7.4
8.0-8.9
20 pH 7.2
20 bog
48 seems to prefer cool water of low mineral content

Taxon Pinnularia brebissonii var. diminuta (Grun.) Cl.

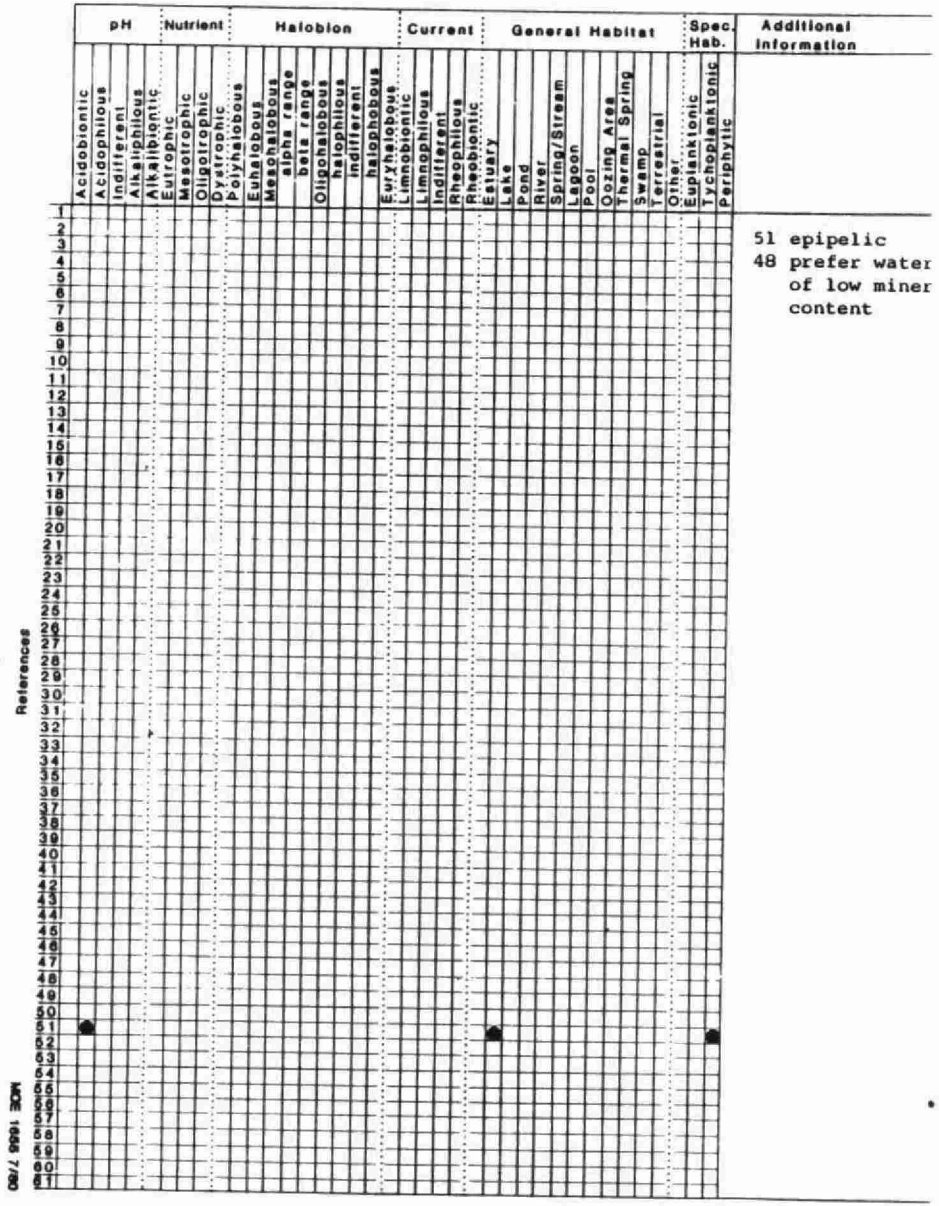
Synonym Pinnularia microstauron var. brebissonii f. diminuta (Grun.) Hust



19 pH 6.5-7.4
8.0-8.4
9.0 +
20 pH 6.8
20 bog

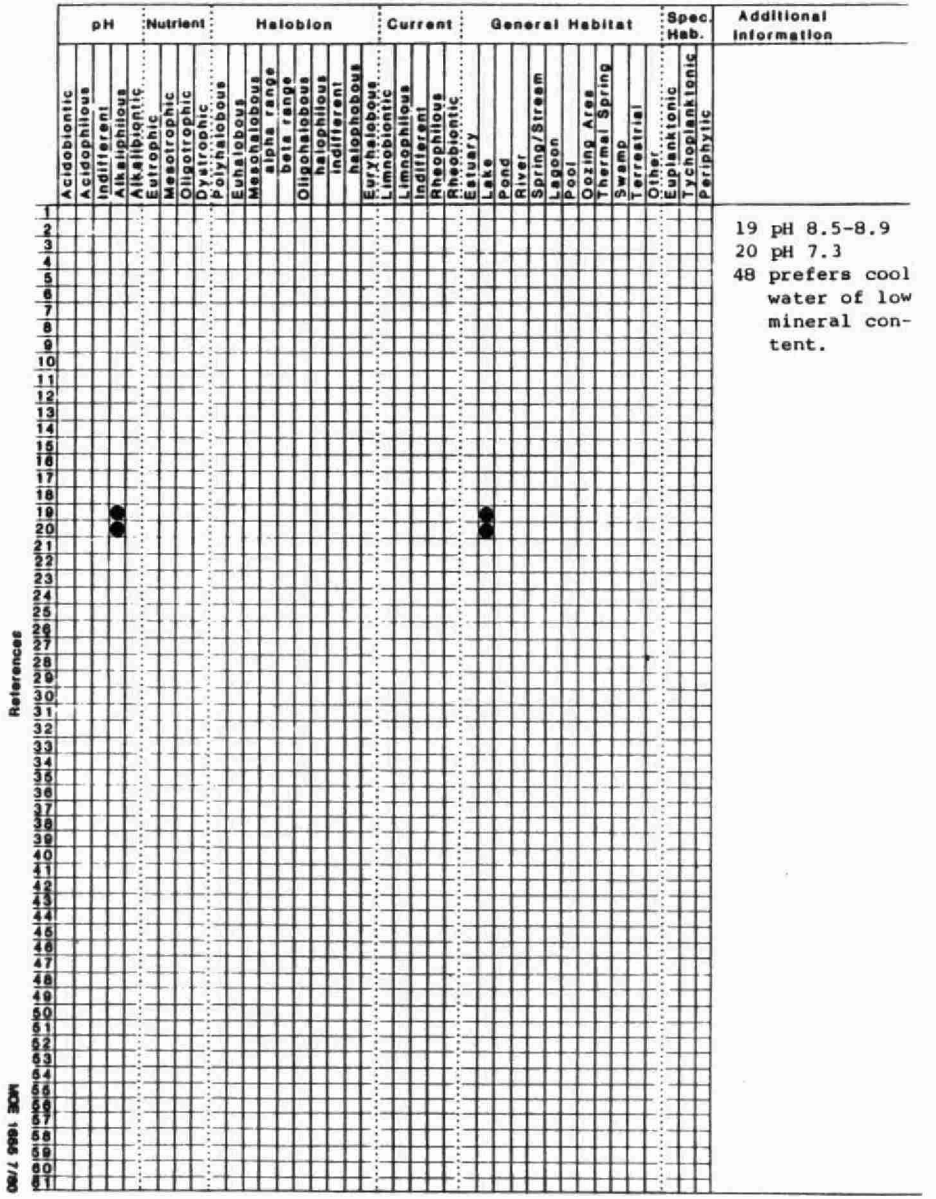
Taxon Pinnularia cardinaliculus Cl.

Synonym



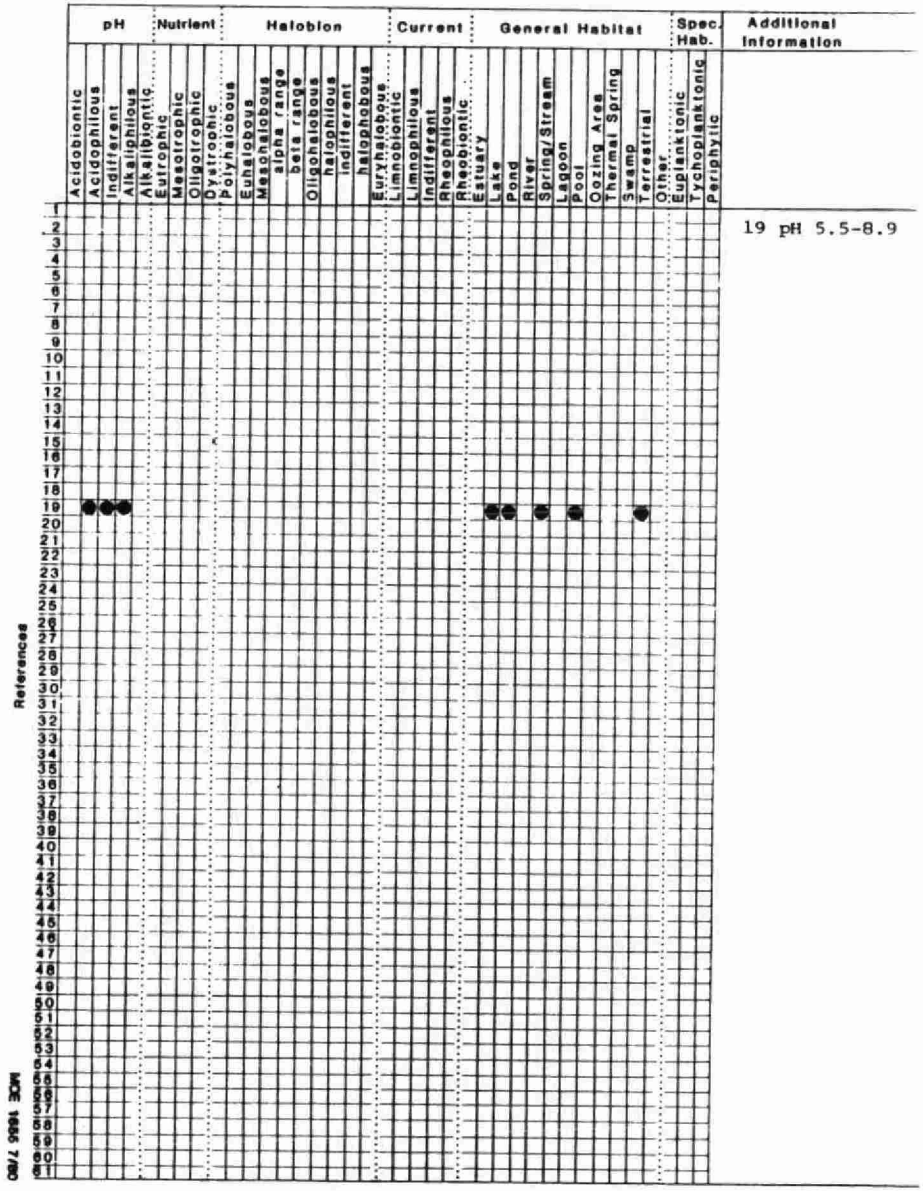
Taxon Pinnularia cardinalis (Ehr.) W. Sm. var. cardinalis

Synonym



Taxon Pinnularia cruciformis var. faeroeensis Østr.

Synonym

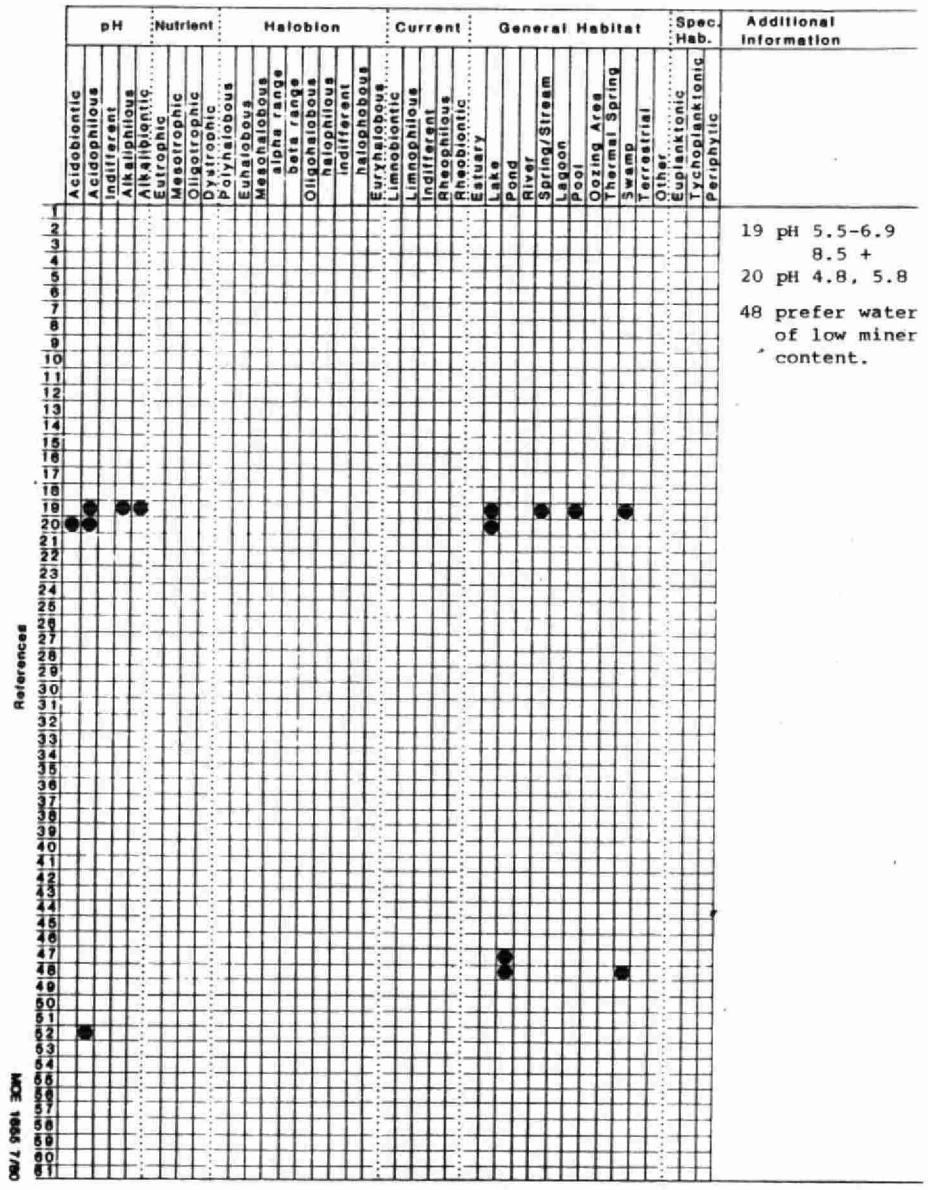


Additional information

19 pH 5.5-8.9

Taxon Pinnularia dactylus Ehr.

Synonym Pinnularia gigas Ehr.

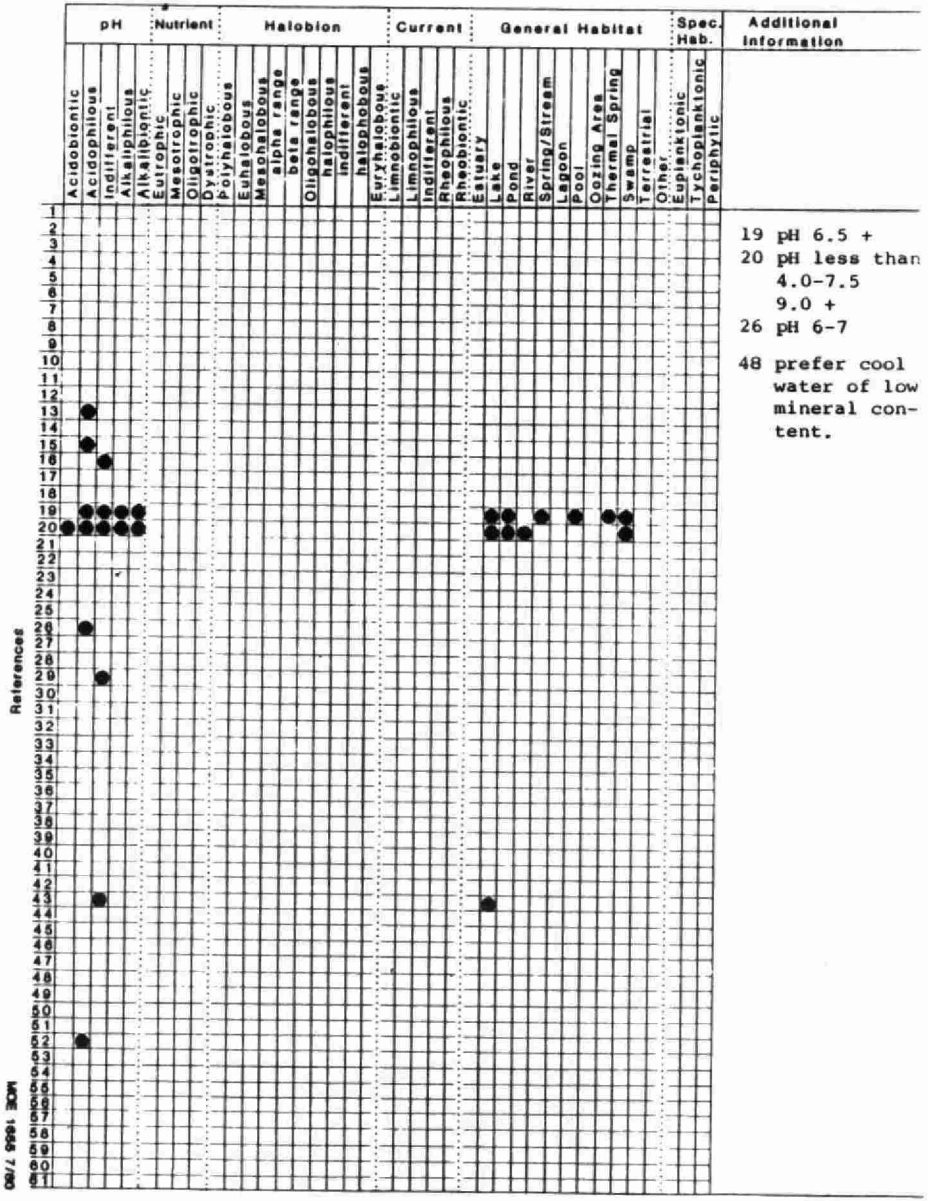


Additional information

19 pH 5.5-6.9
8.5 +
20 pH 4.8, 5.8
48 prefer water of low miner content.

Taxon Pinnularia divergens W. Sm. var. divergens

Synonym

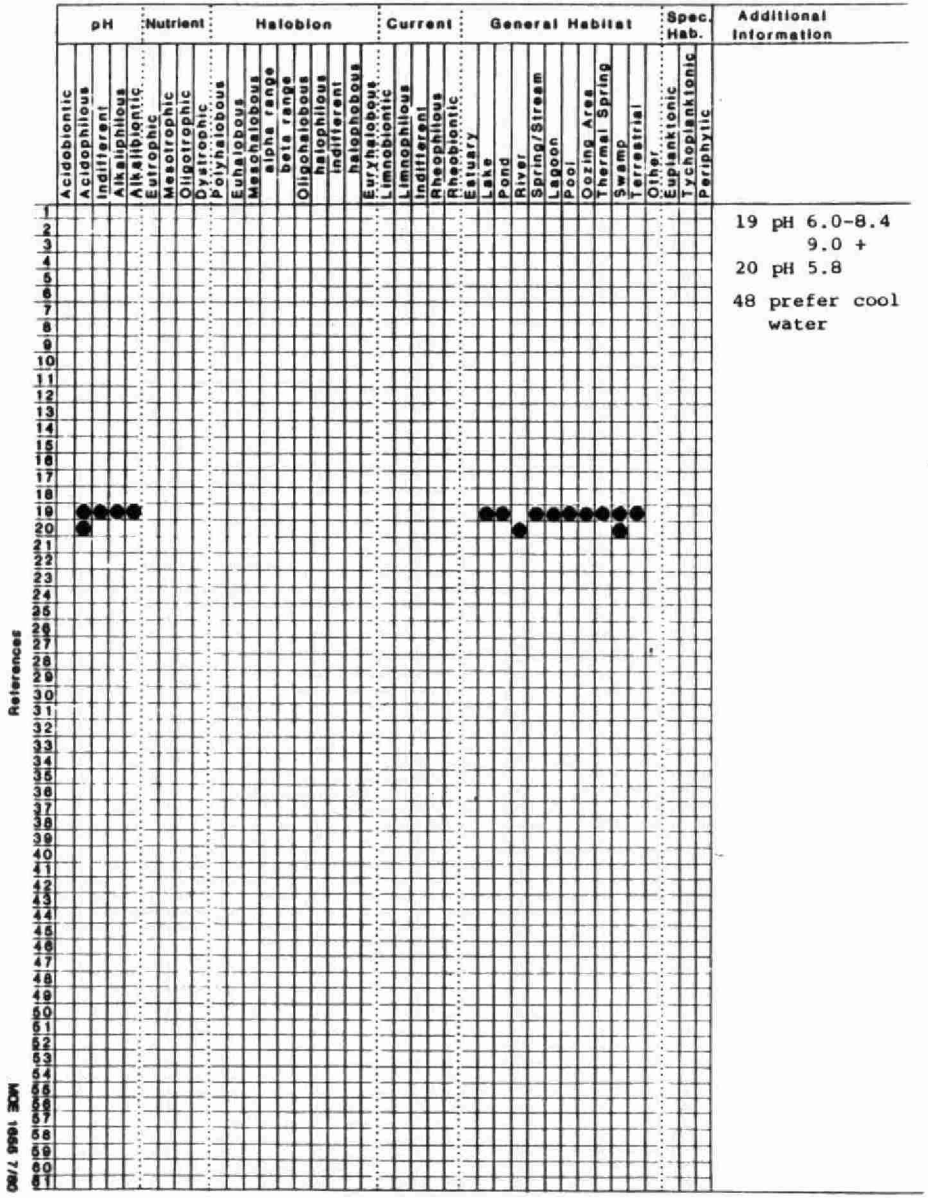


19 pH 6.5 +
20 pH less than 4.0-7.5 9.0 +
26 pH 6-7

48 prefer cool water of low mineral content.

Taxon Pinnularia divergens var. elliptica (Grun.) Cl. 48

Synonym

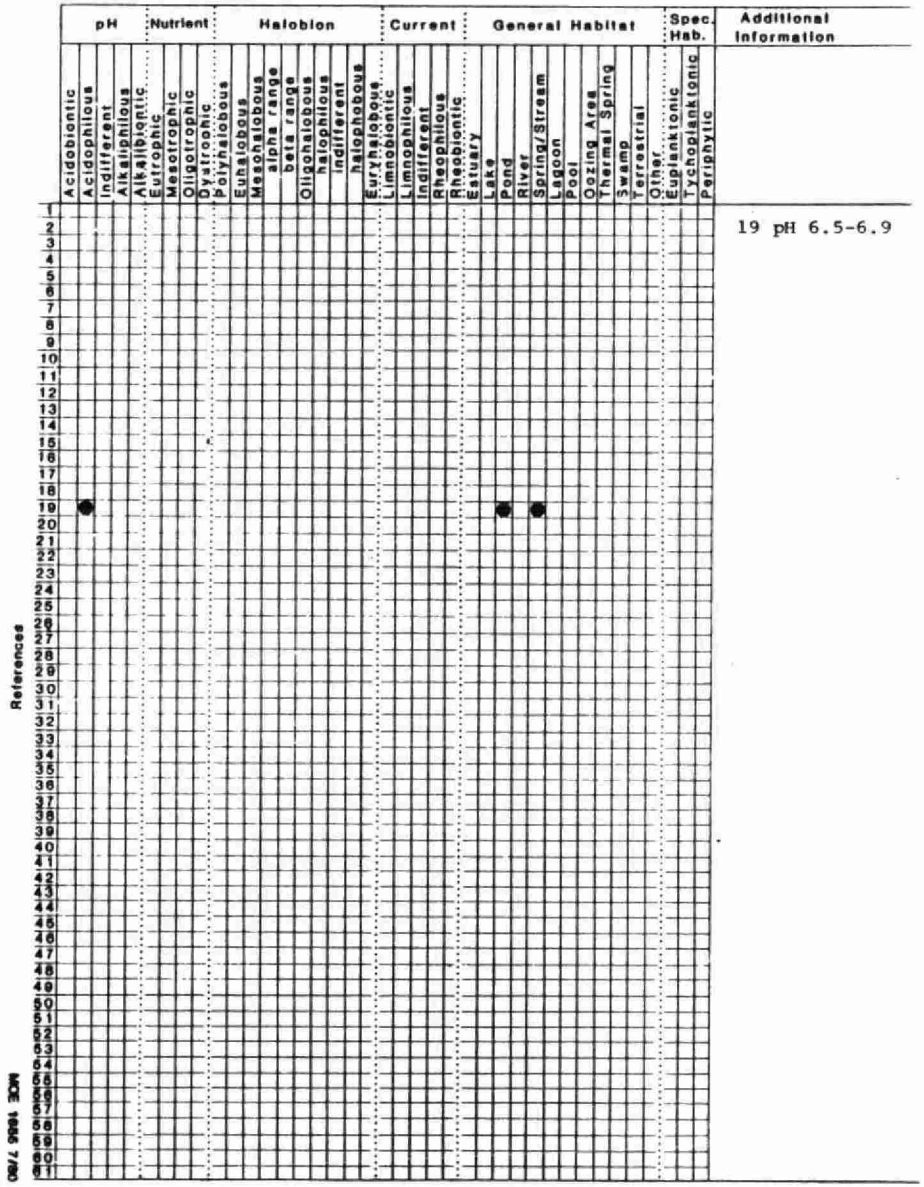


19 pH 6.0-8.4 9.0 +
20 pH 5.8

48 prefer cool water

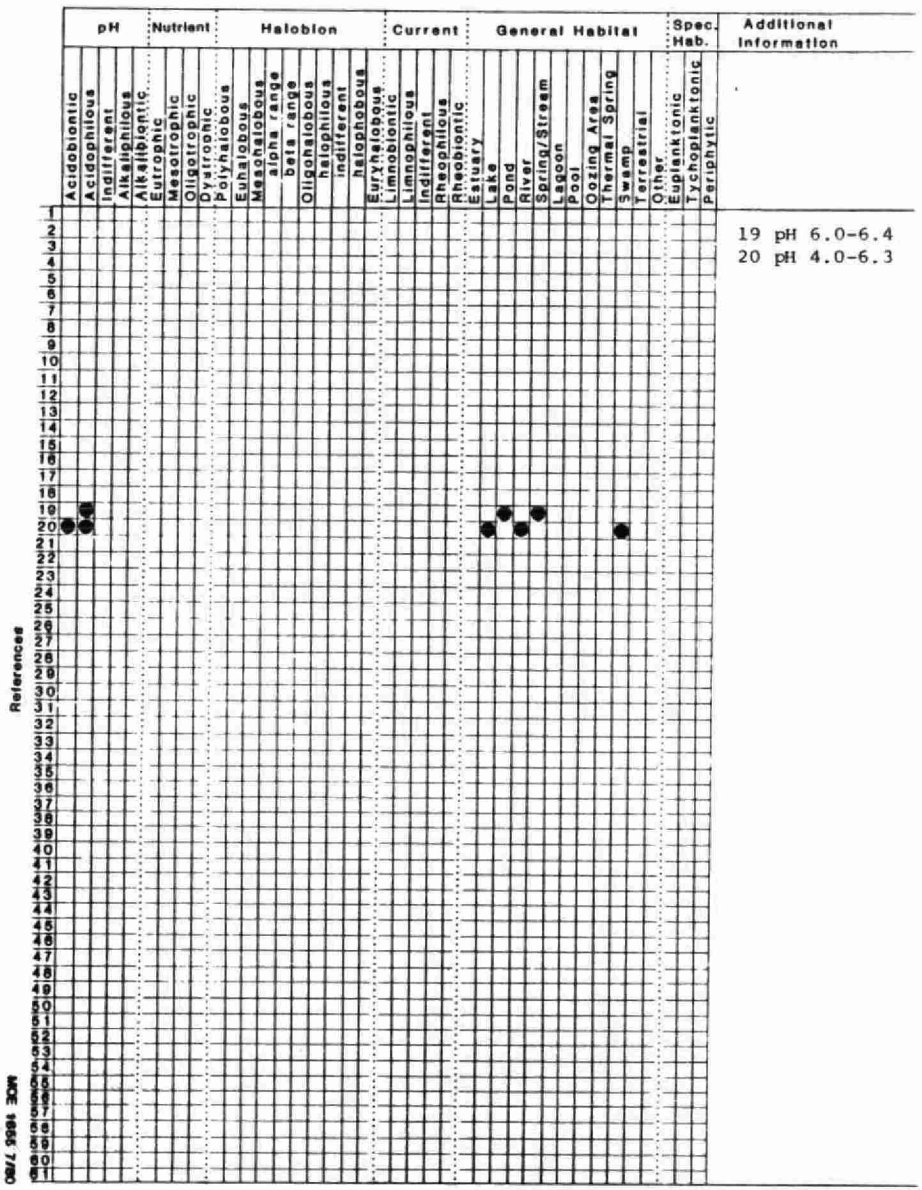
Taxon Pinnularia divergens var. elongata Østr.

Synonym



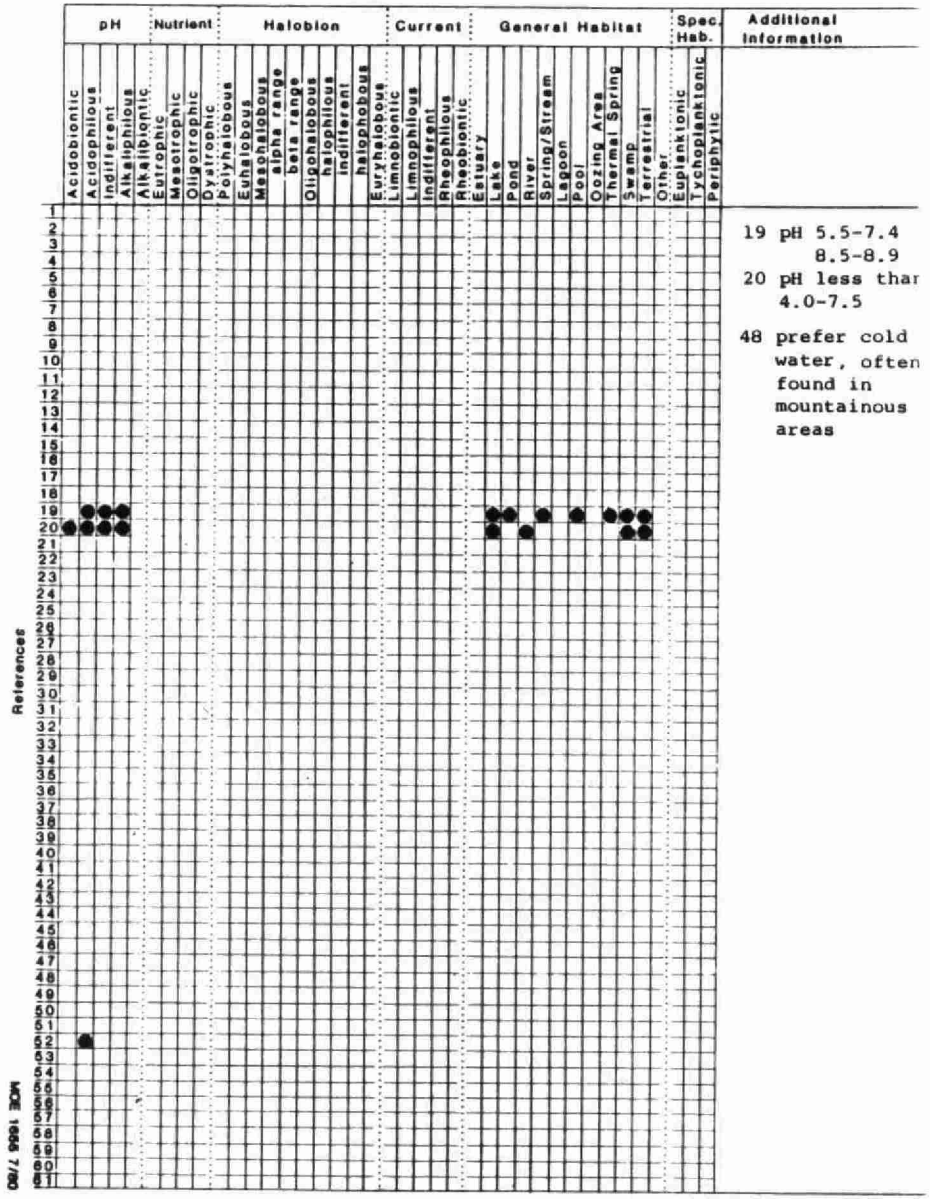
Taxon Pinnularia divergens var. undulata (M.Perag.&Herib.)Hust. Pat

Synonym



Taxon Pinnularia divergentissima (Grun.) Cl. var. divergentissima

Synonym



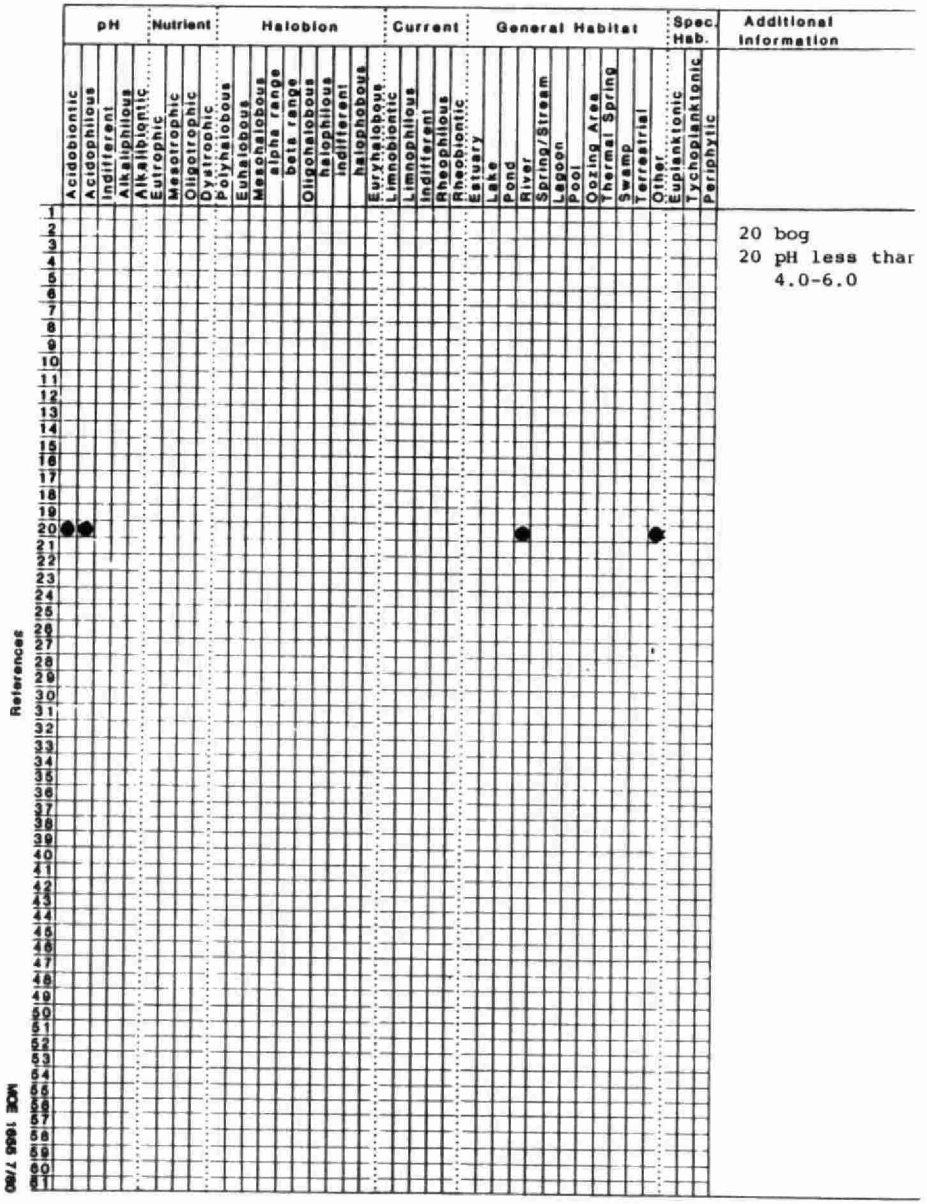
19 pH 5.5-7.4
8.5-8.9

20 pH less thar
4.0-7.5

48 prefer cold water, often found in mountainous areas

Taxon Pinnularia divergentissima var. undulata Cl.-Eul.

Synonym

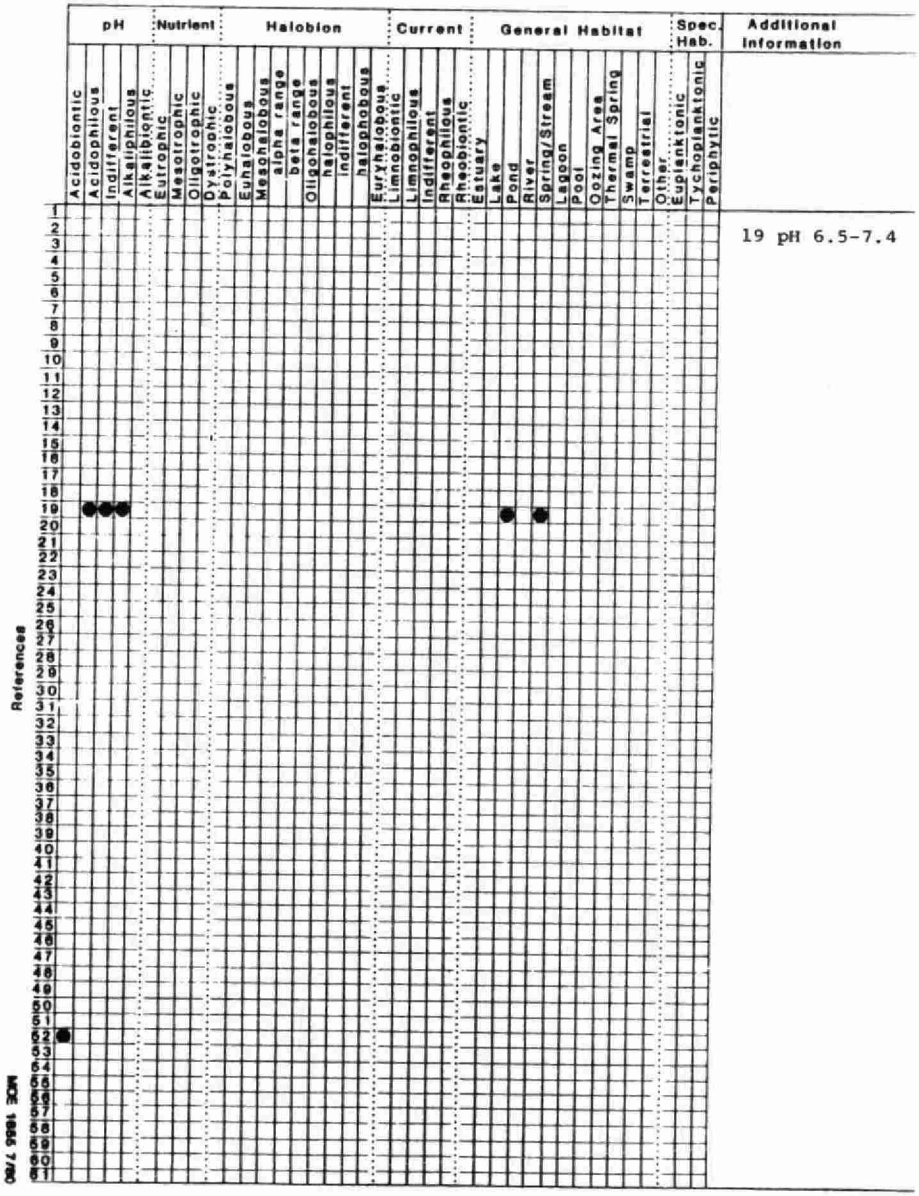


20 bog

20 pH less thar
4.0-6.0

Taxon Pinnularia episcopalis Cl.

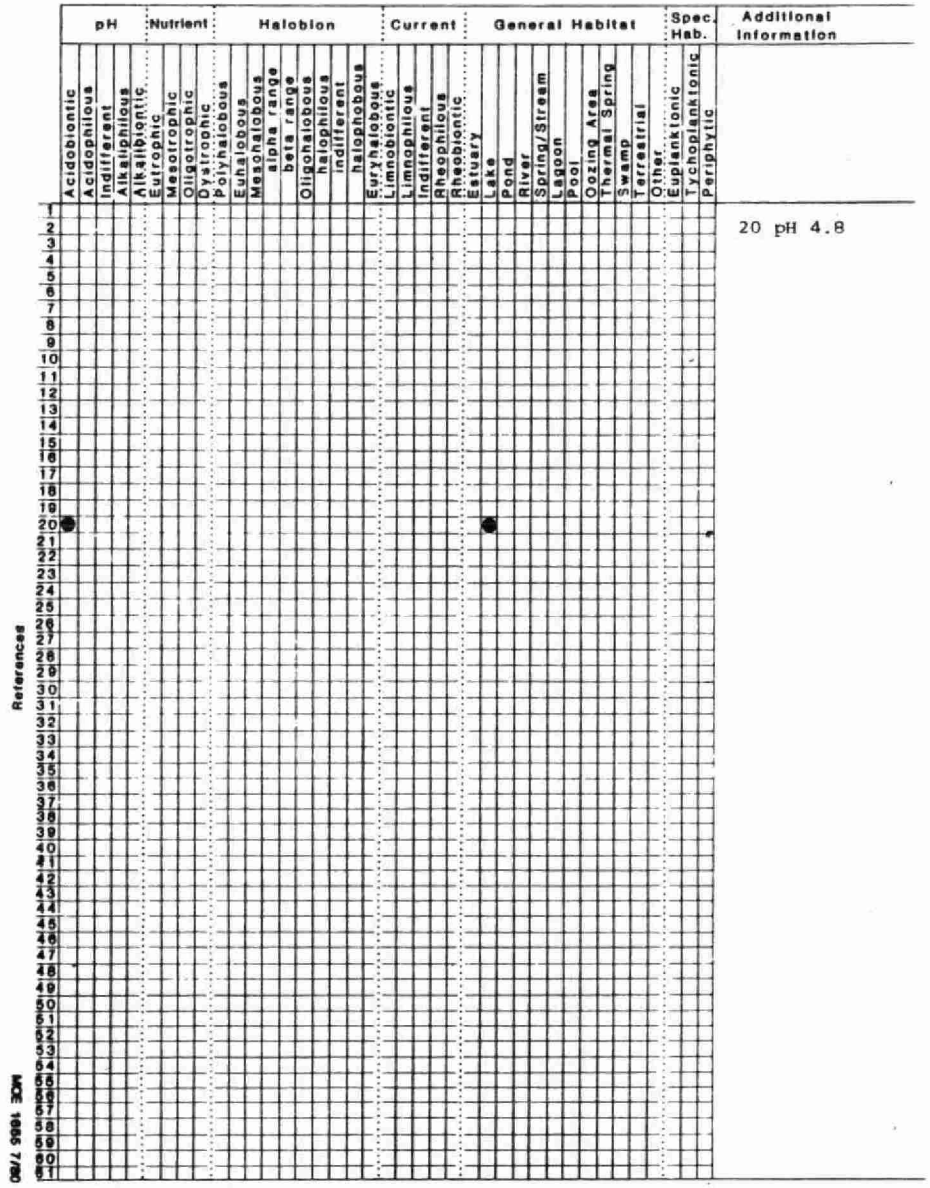
Synonym



19 pH 6.5-7.4

Taxon Pinnularia esox Ehr. var. esox

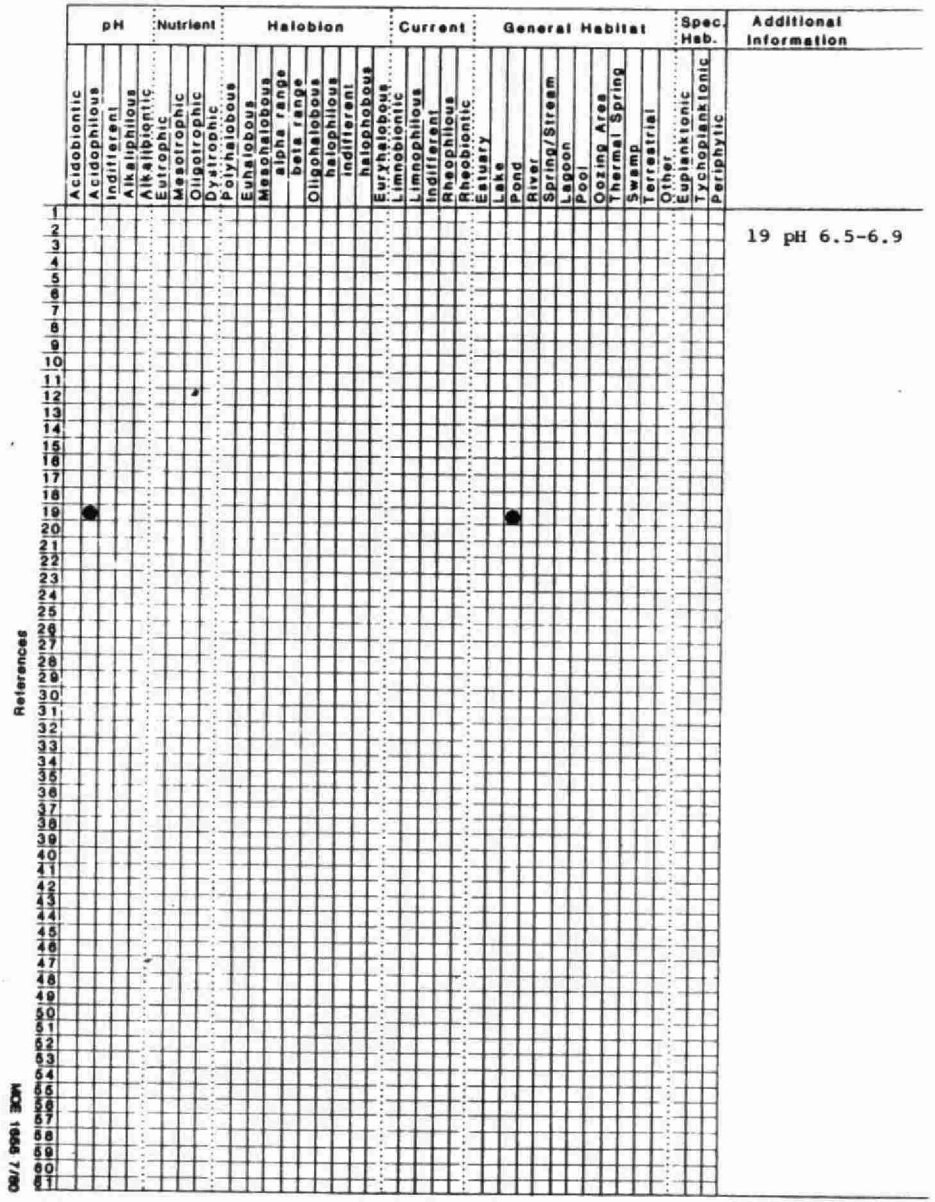
Synonym



20 pH 4.8

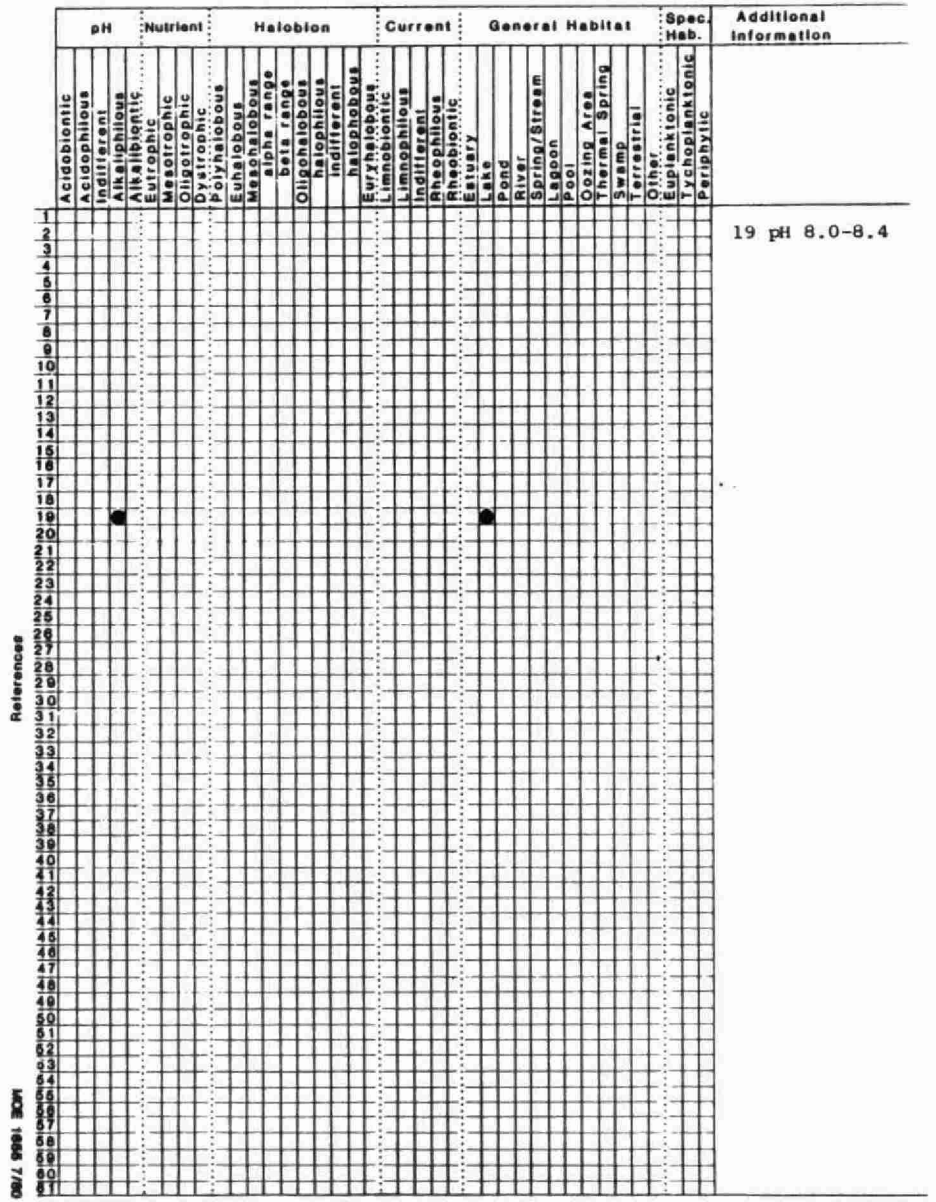
Taxon Pinnularia esox var. islandica Foged

Synonym



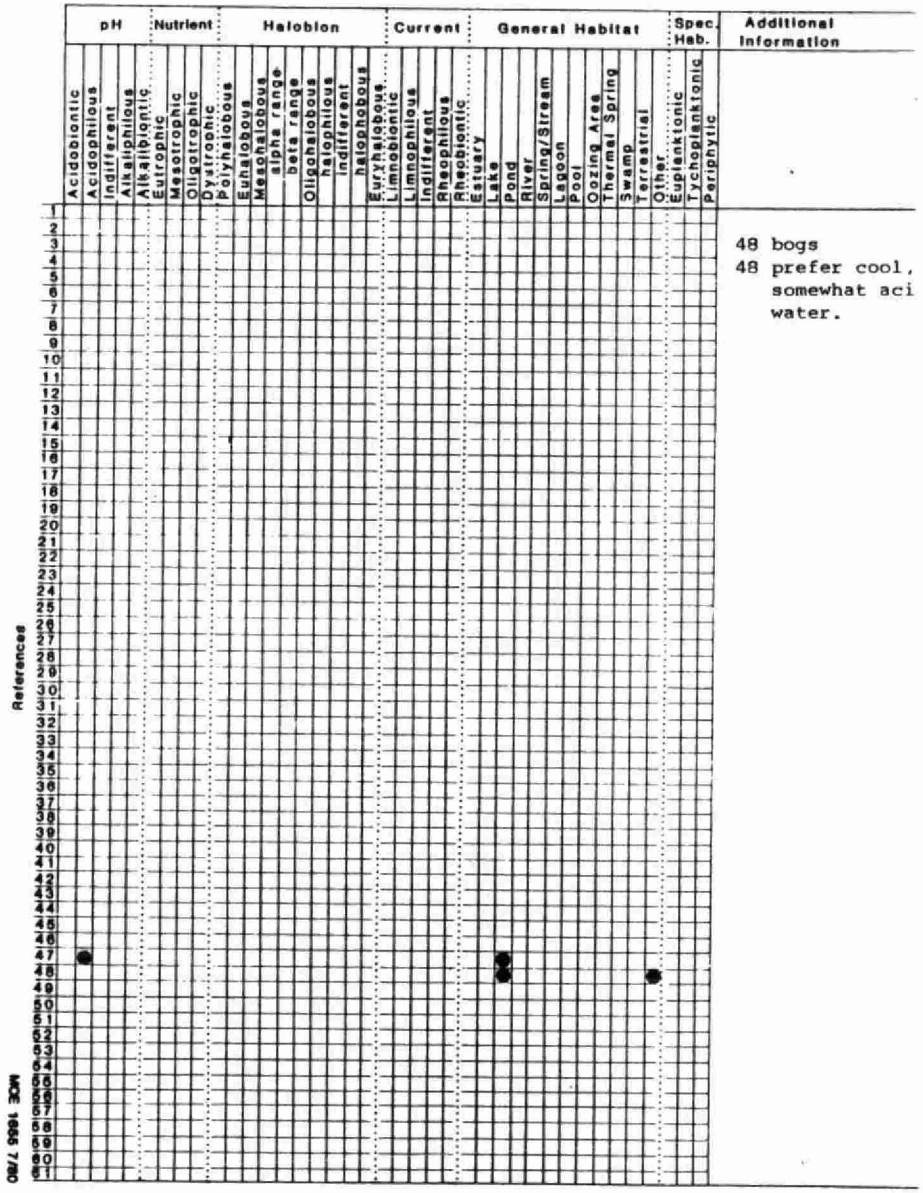
Taxon Pinnularia fasciata Lager.

Synonym



Taxon Pinnularia flexuosa Cl.

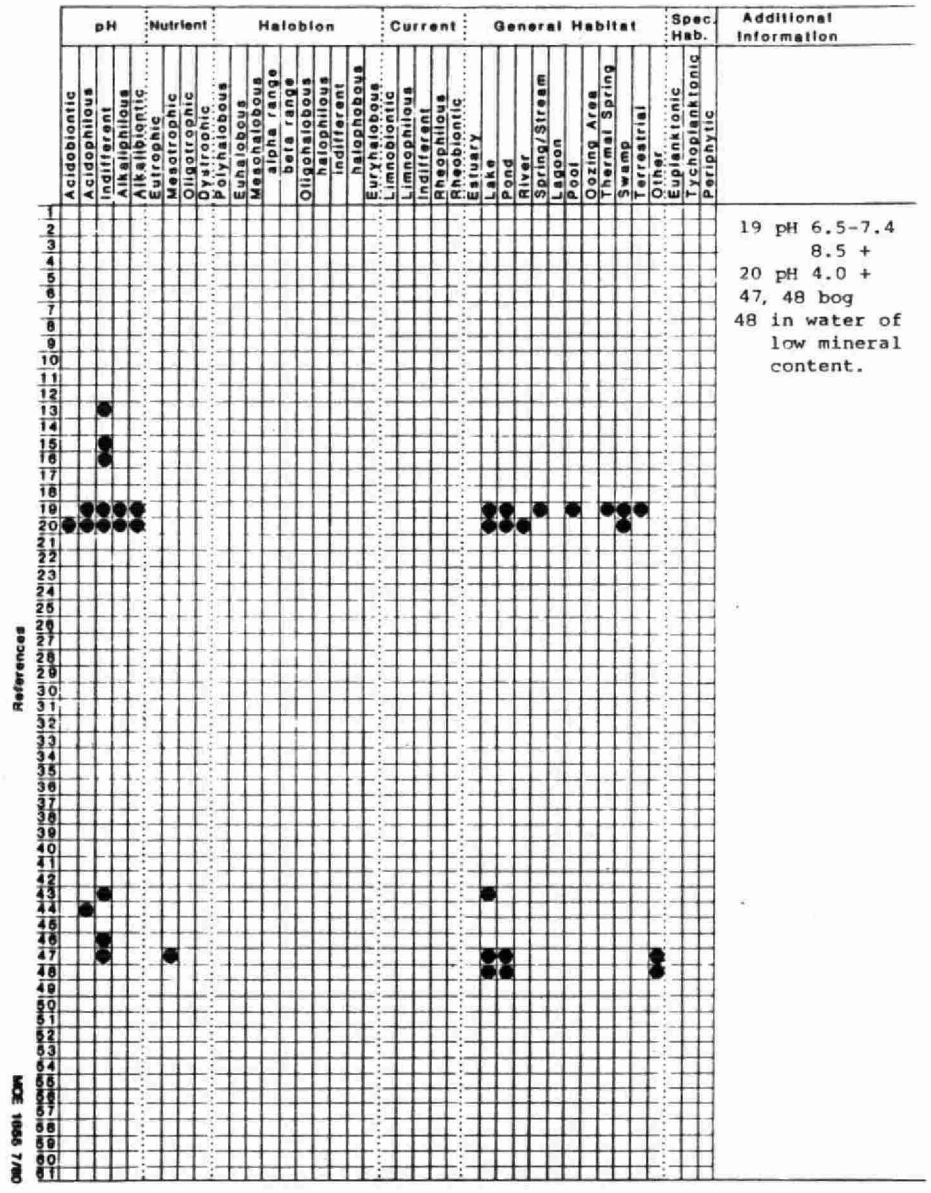
Synonym



48 bogs
48 prefer cool, somewhat aci water.

Taxon Pinnularia gentilis (Donk) Cl. var. gentilis

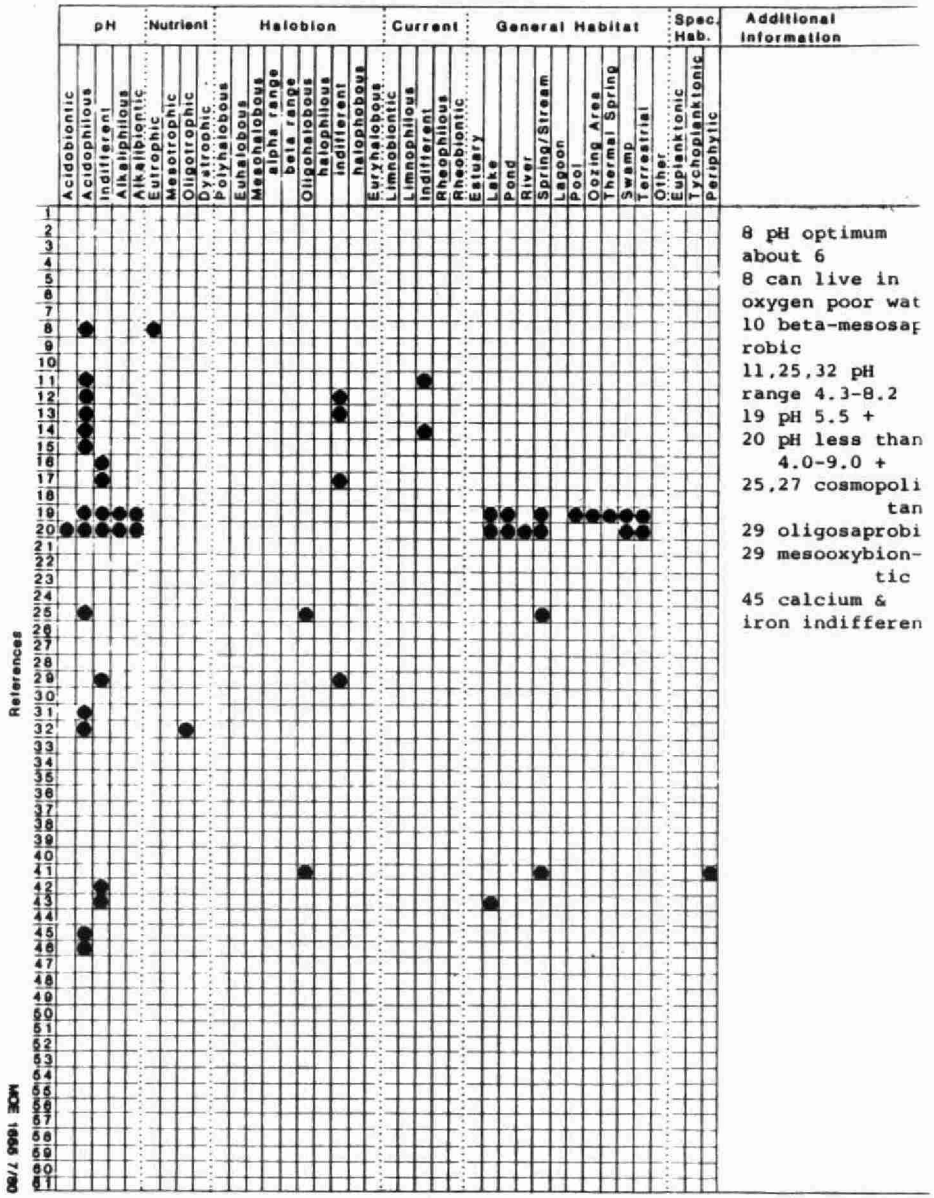
Synonym



19 pH 6.5-7.4 8.5 +
20 pH 4.0 +
47, 48 bog
48 in water of low mineral content.

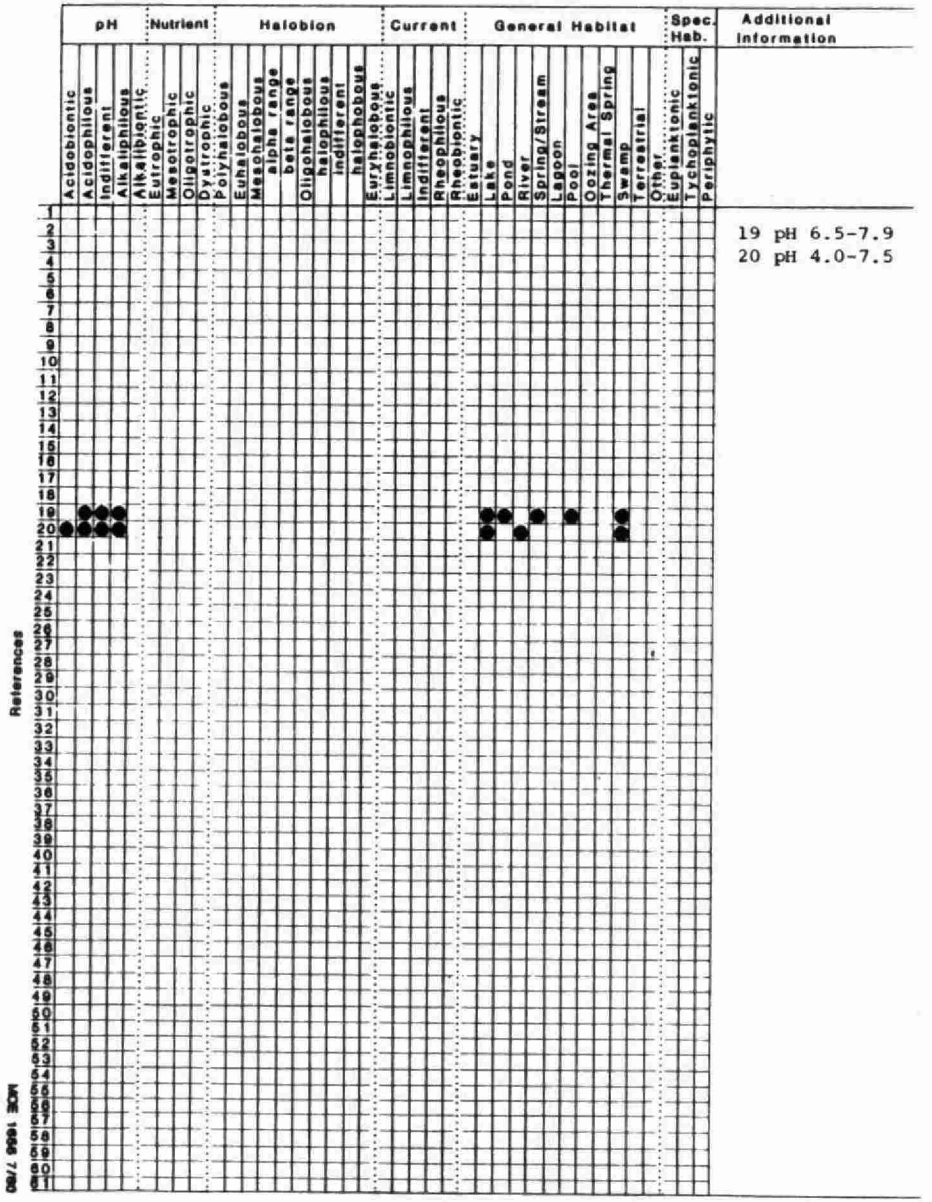
Taxon Pinnularia gibba Ehr. var. gibba

Synonym



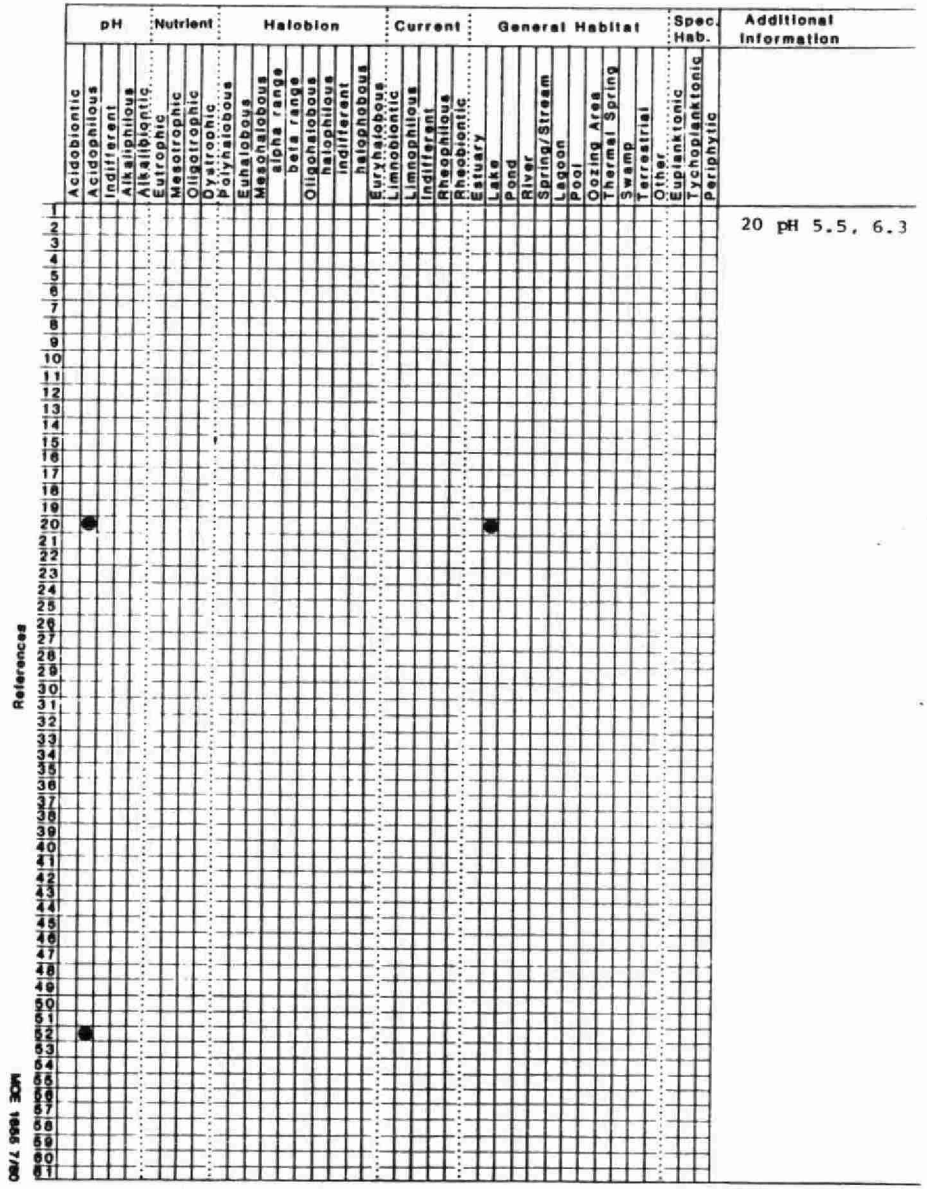
Taxon Pinnularia gibba var. parva (Ehr.) Grun.

Synonym



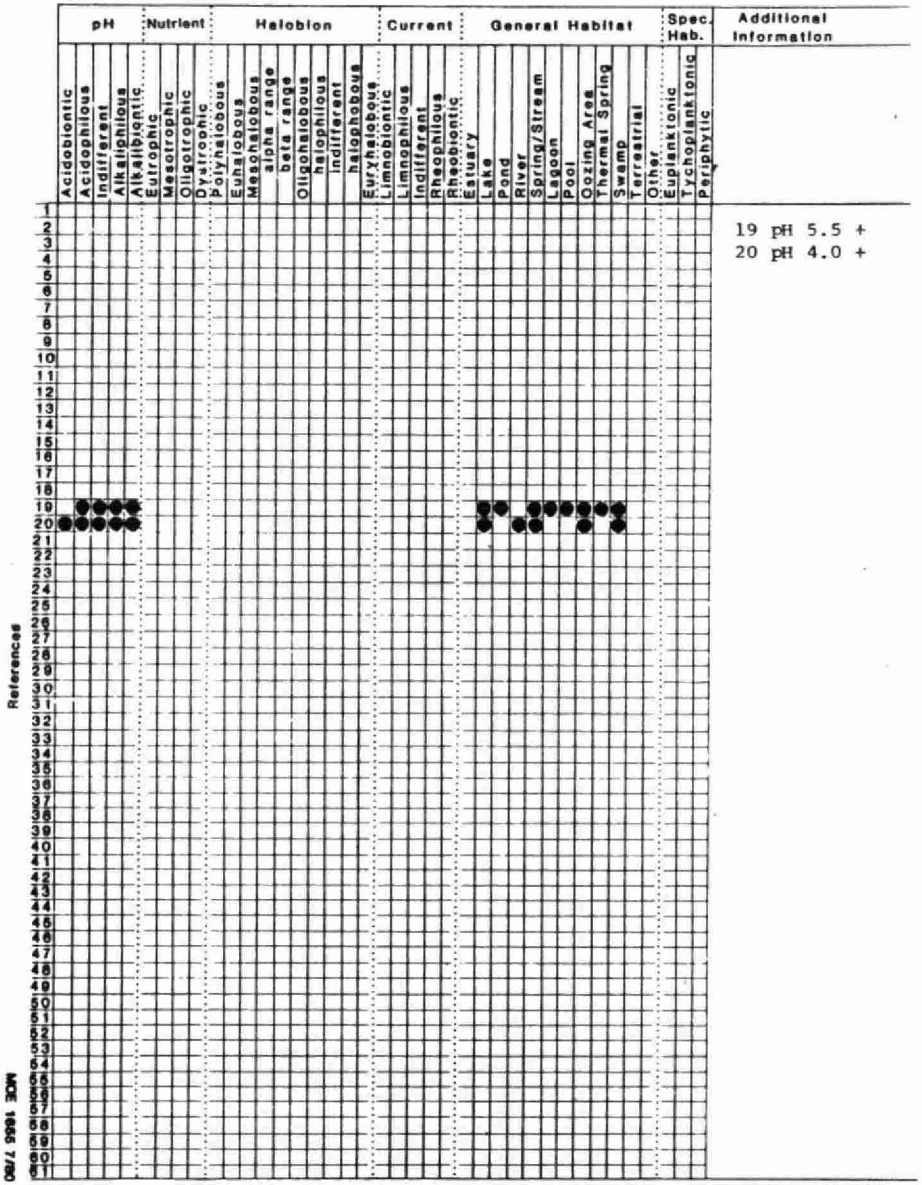
Taxon Pinnularia globiceps Greg.

Synonym



Taxon Pinnularia gracillima Greg.

Synonym Navicula gracillima (Greg.) Ralfs



Taxon Pinnularia hemiptera var. inconstans (A. Mayer) Hust.

Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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Taxon Pinnularia hustedtii Molder

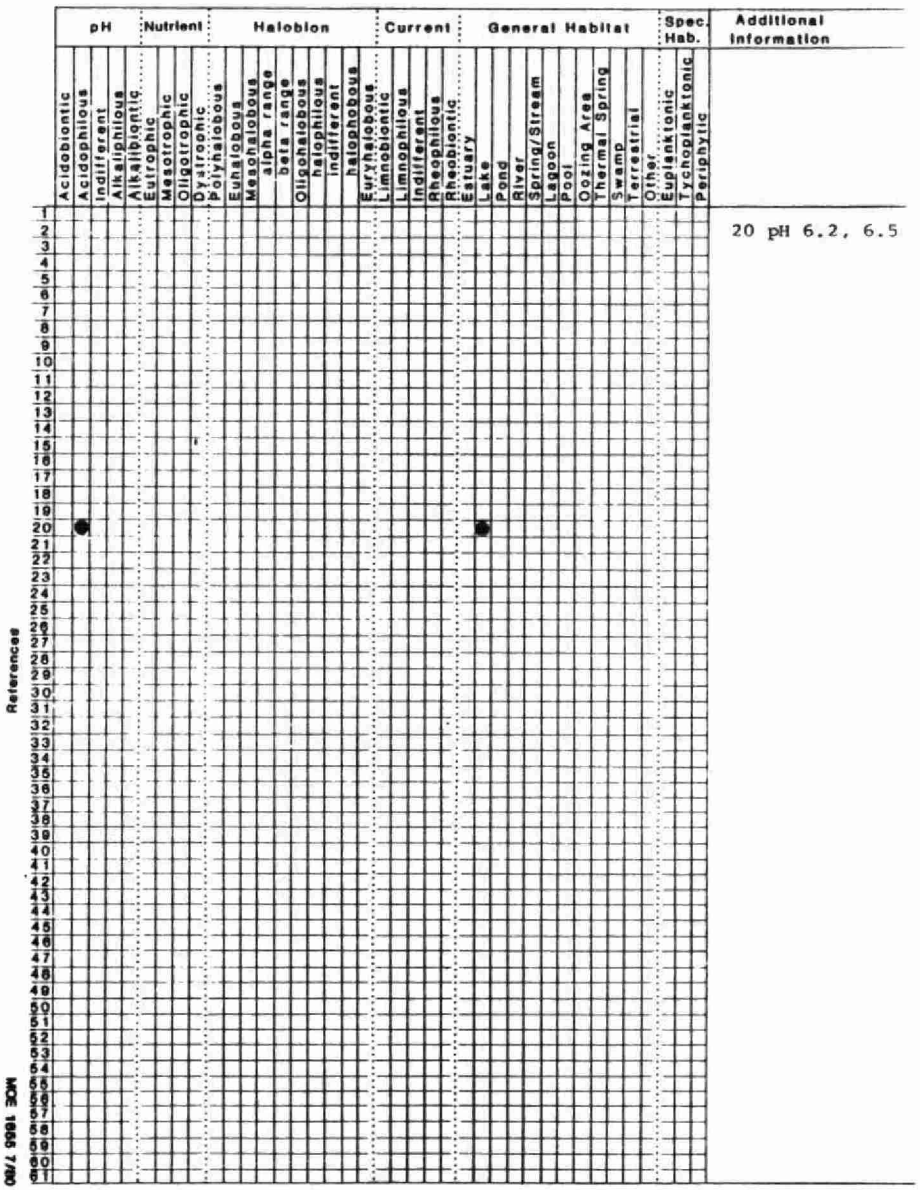
Synonym

References	pH: Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Nutrient: Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Halobion: Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Euryhalobous	Current: Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	General Habitat: Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Spec. Hab.: Euplanktonic	Tychoplanktonic	Periphytic	Additional Information
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HCE 1666 7/80

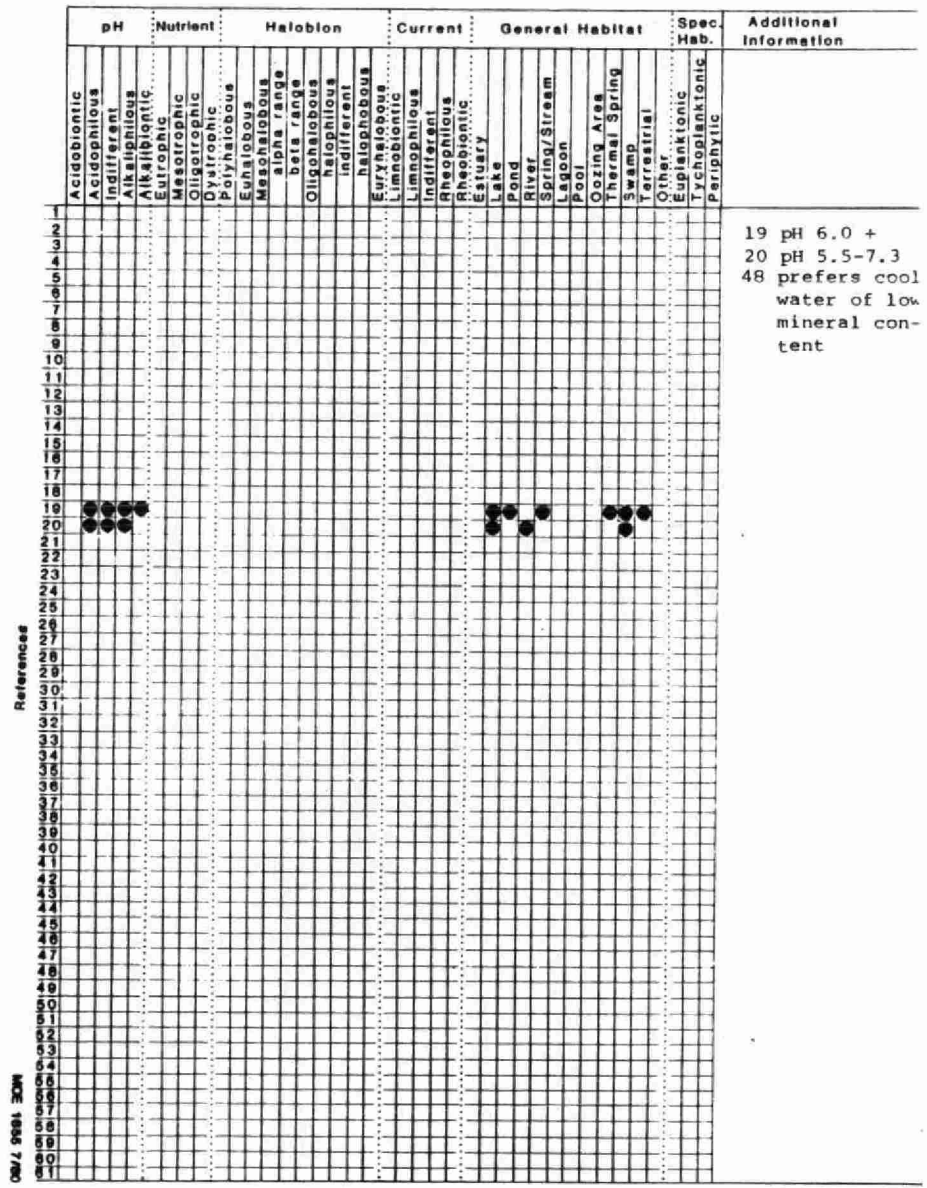
Taxon Pinnularia iatriaensis Foged

Synonym



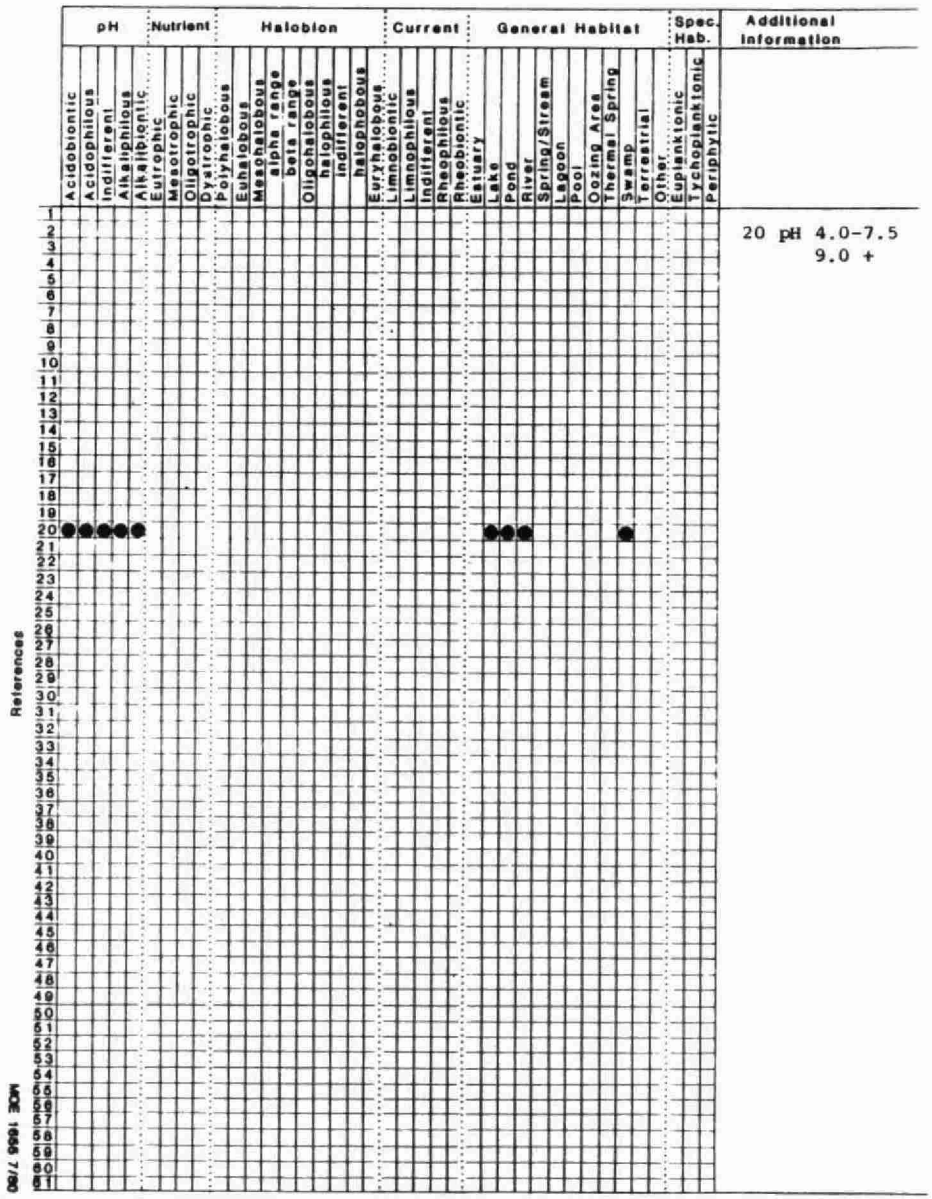
Taxon Pinnularia intermedia (Lager.) Cl.

Synonym



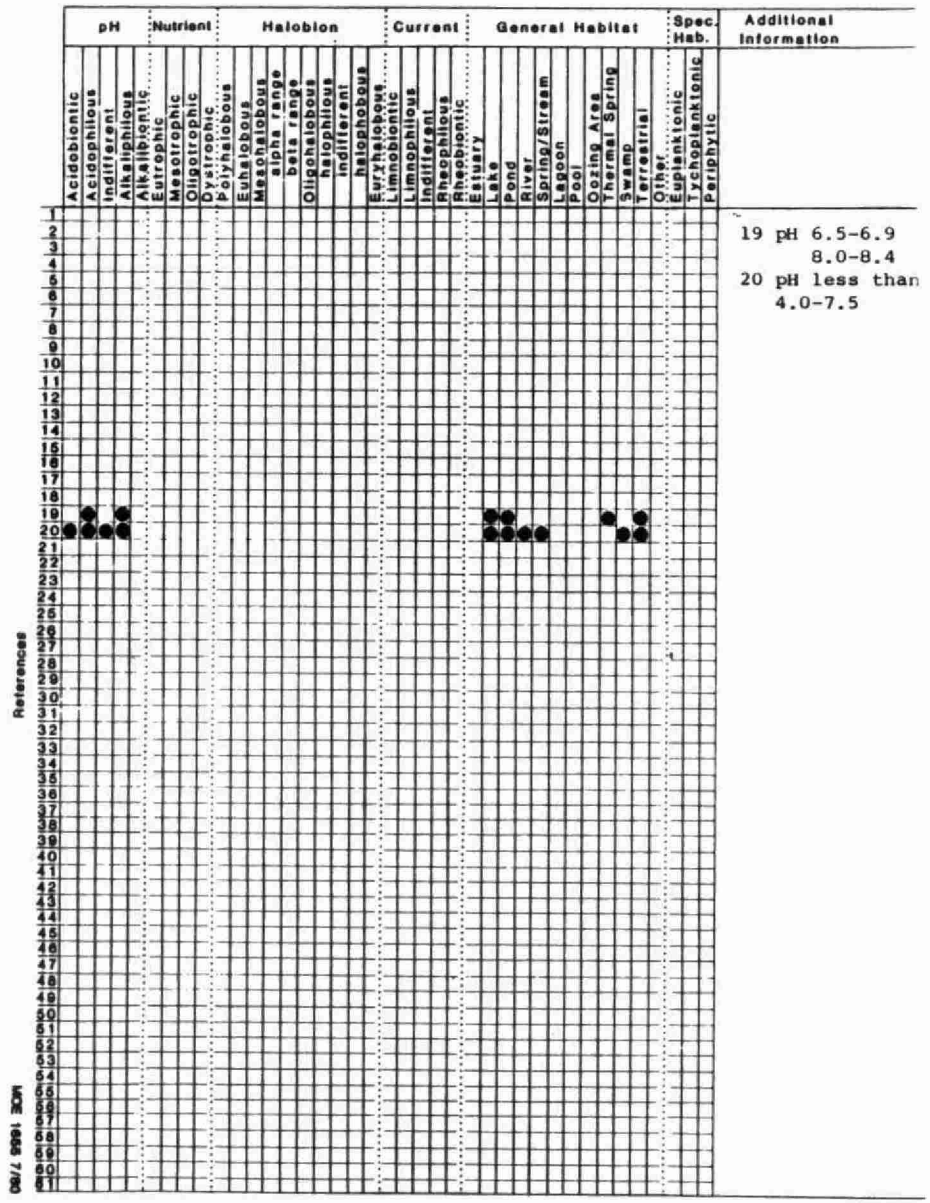
Taxon Pinnularia interrupta var. gibberula Hust.

Synonym



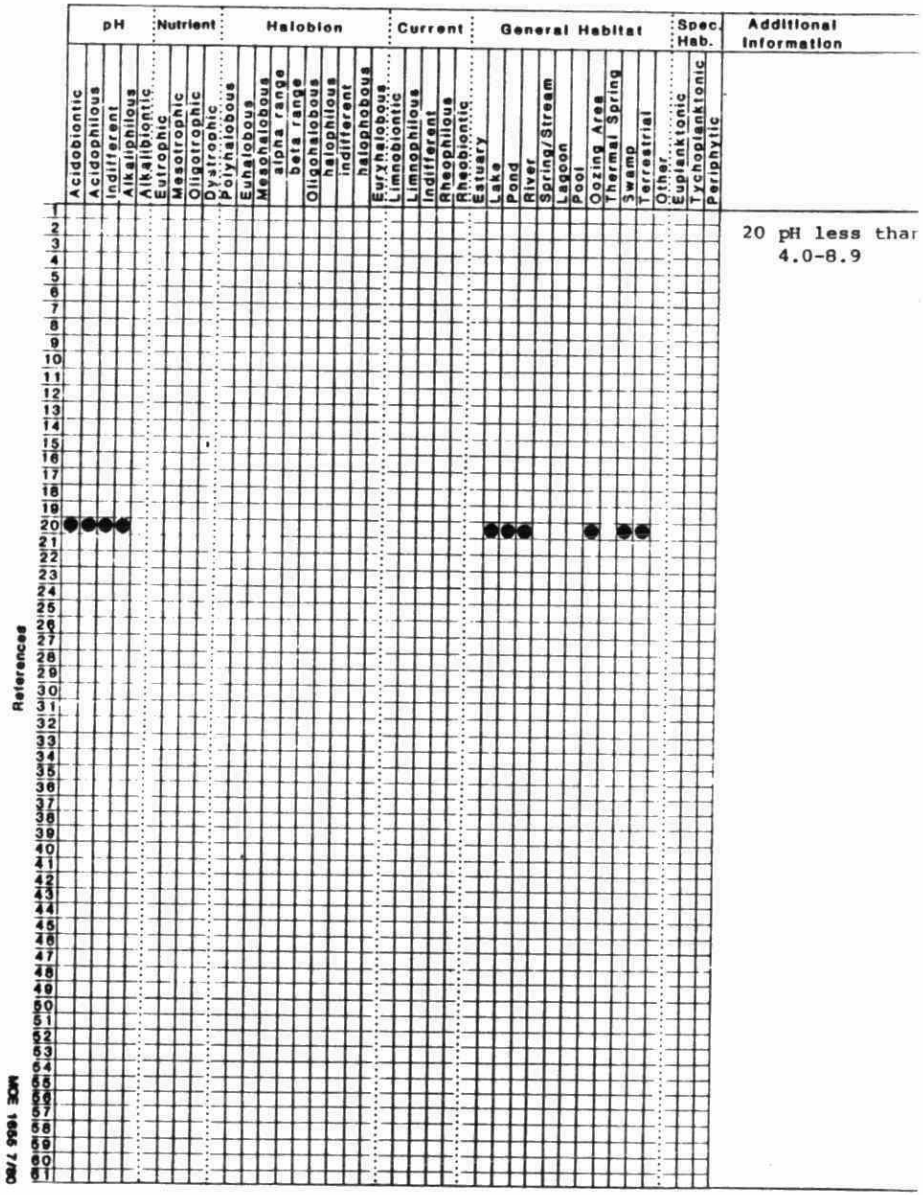
Taxon Pinnularia interrupta f. minutissima Hust.

Synonym



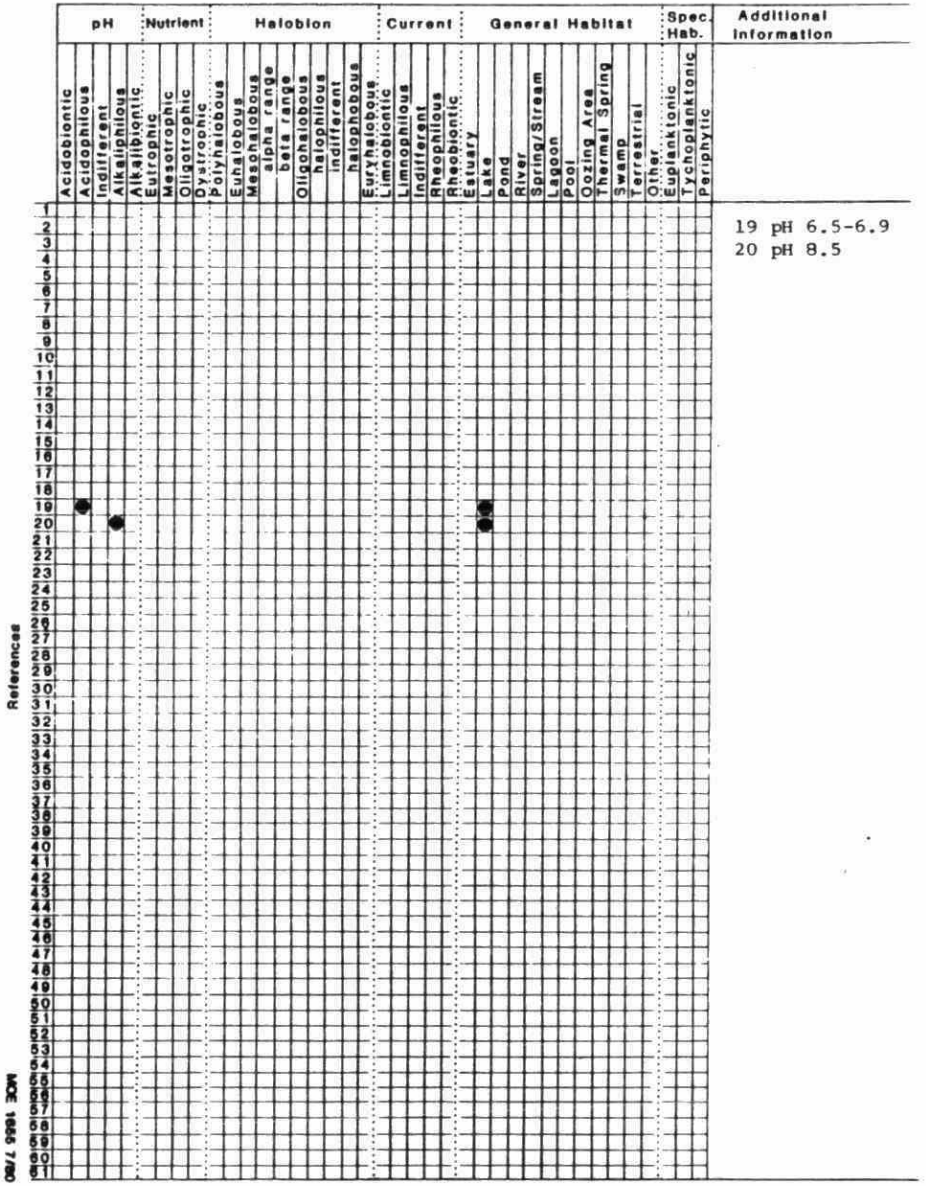
Taxon Pinnularia irrorata (Grun.) Hust.

Synonym



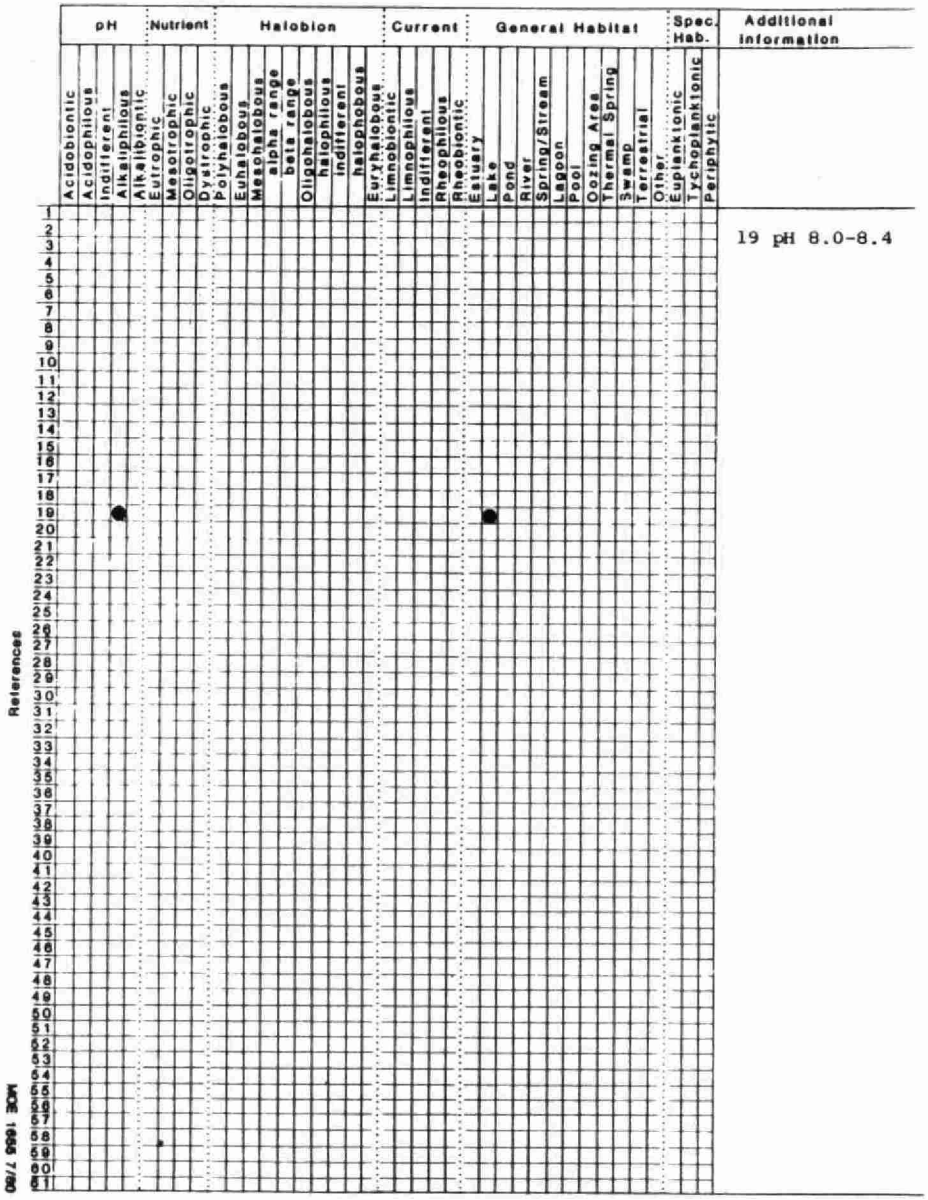
Taxon Pinnularia islandica Østr.

Synonym



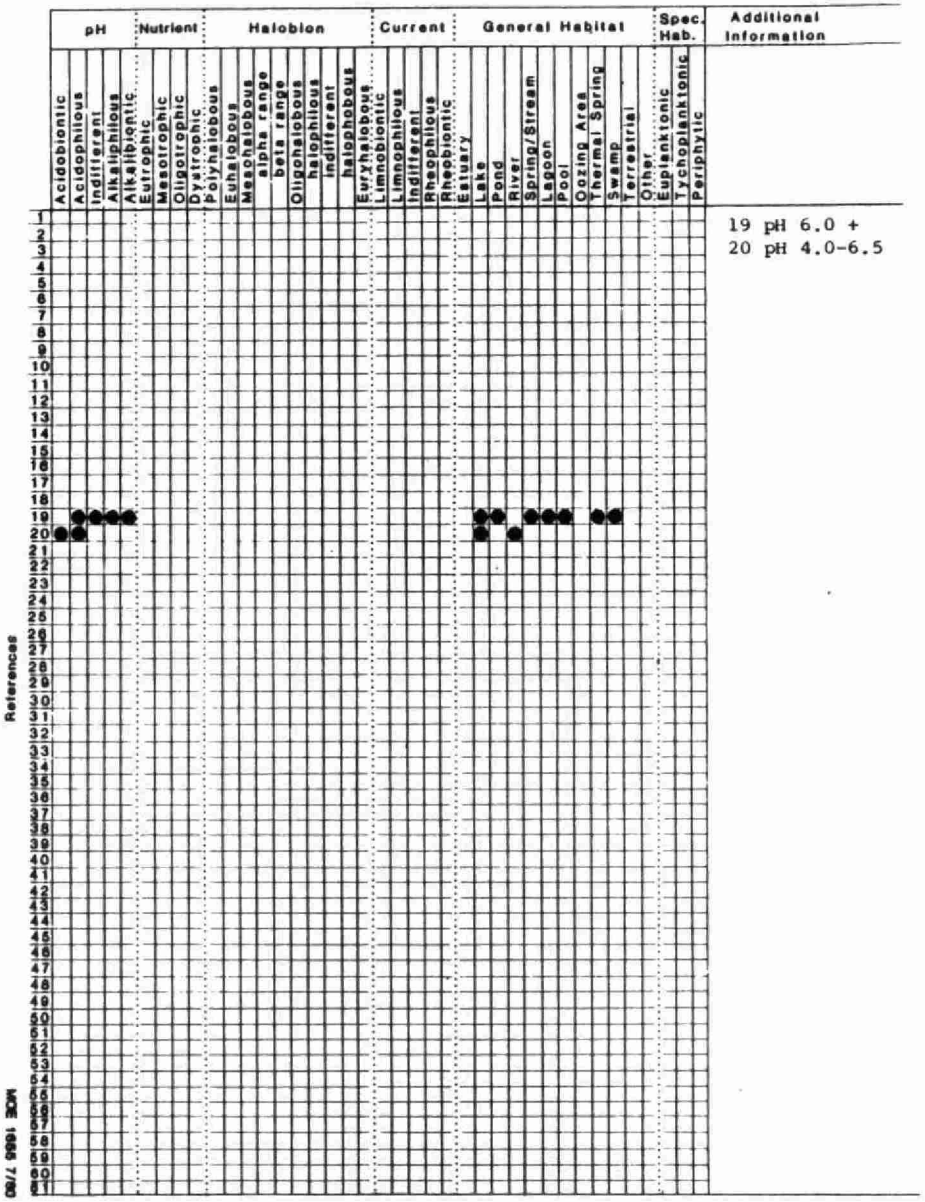
Taxon Pinnularia kriegeriana f. undulata Foged

Synonym



Taxon Pinnularia krookei Grun.

Synonym



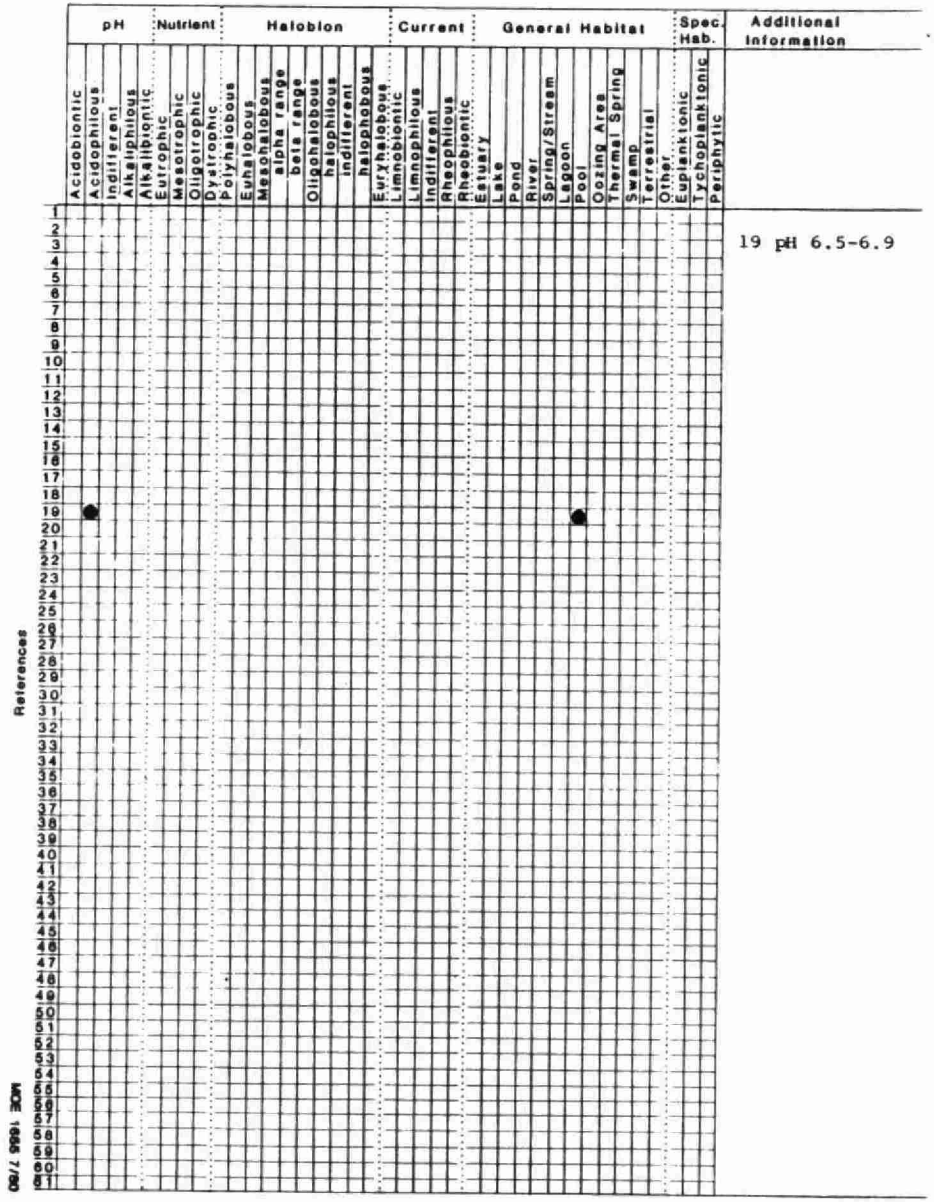
Taxon Pinnularia lapponica Hust.

Synonym

pH					Nutrient				Halobion									Current					General Habitat								Spec. Hab.			Additional Information
Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	Halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	

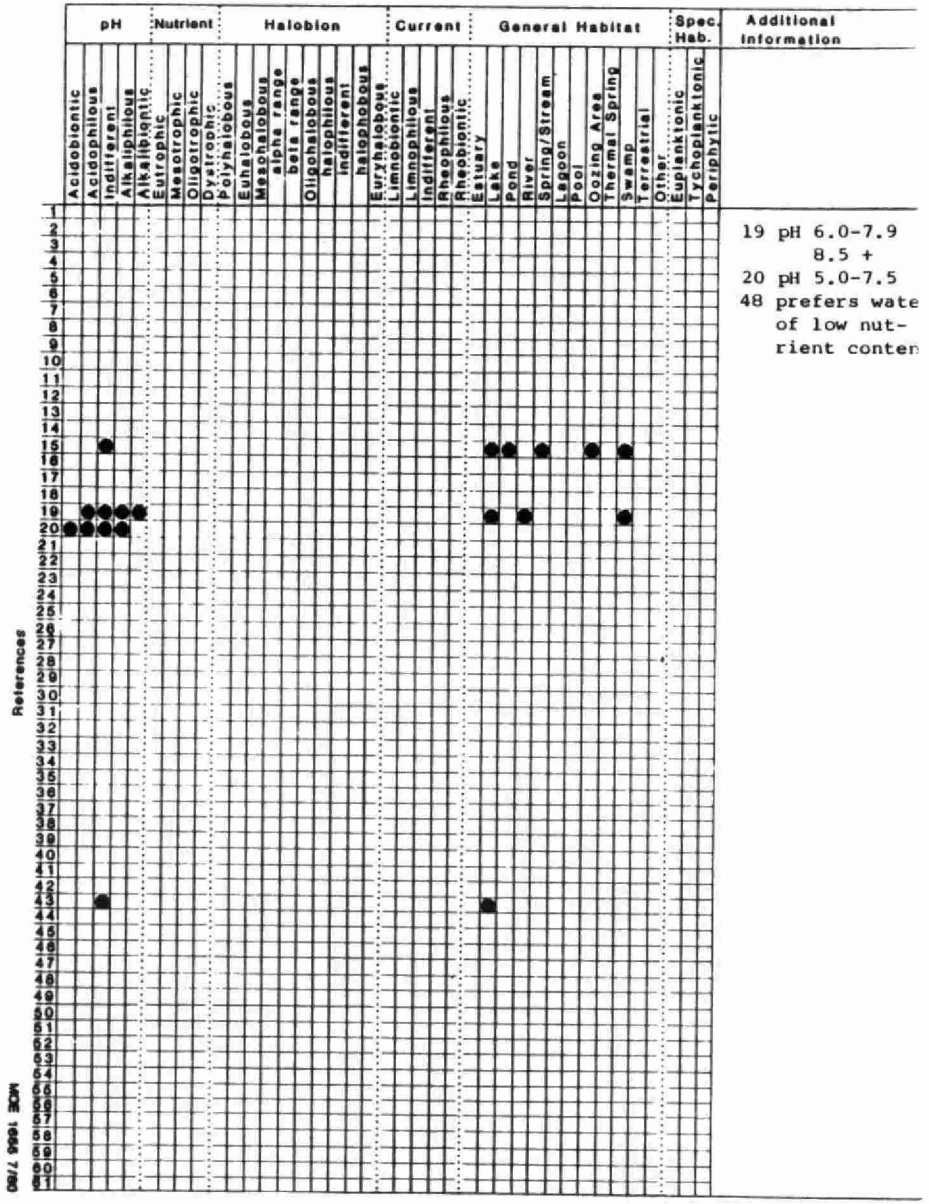
Taxon Pinnularia lata var. rabenhorstii (Grun.) Cl.

Synonym Pinnularia lata var. thuringiaca (Rabh.) A. Mayer



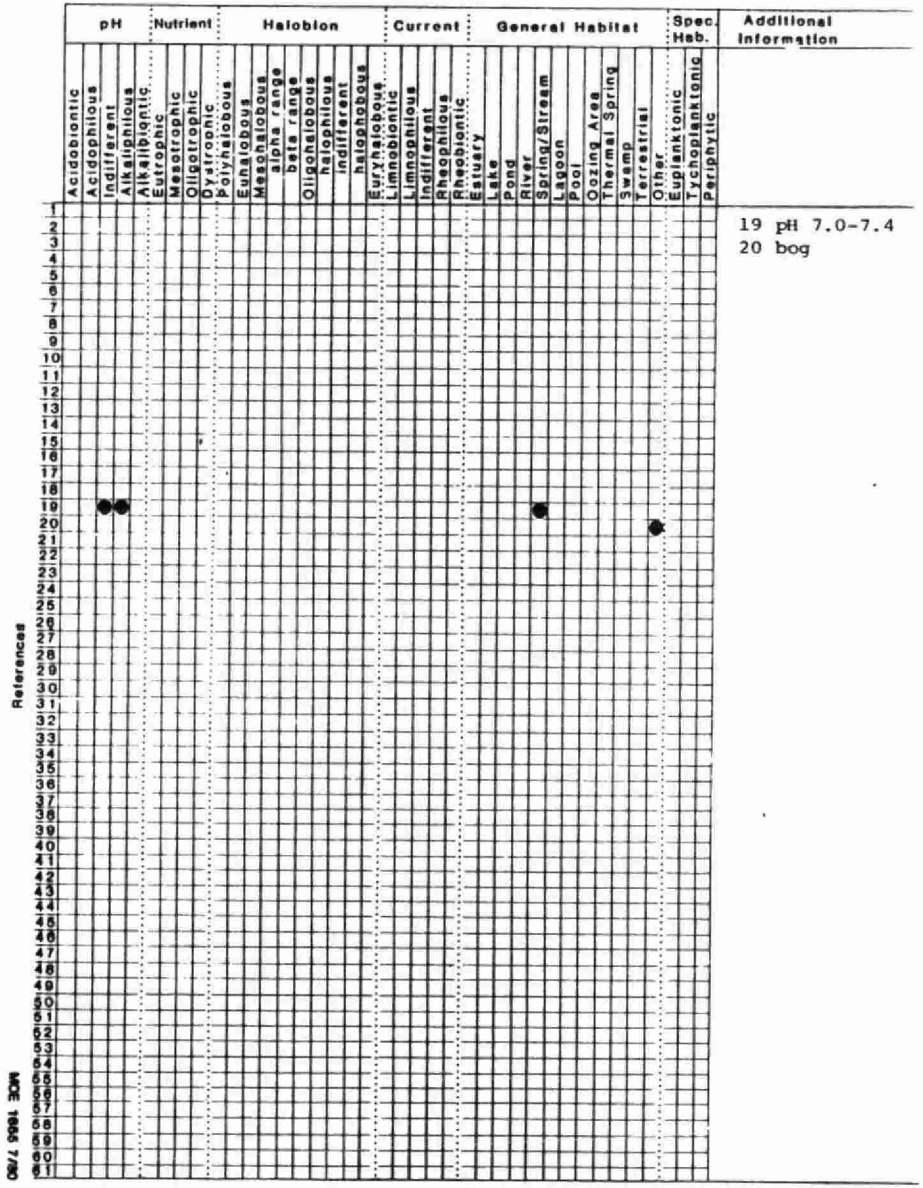
Taxon Pinnularia legumen (Ehr.) Ehr.

Synonym



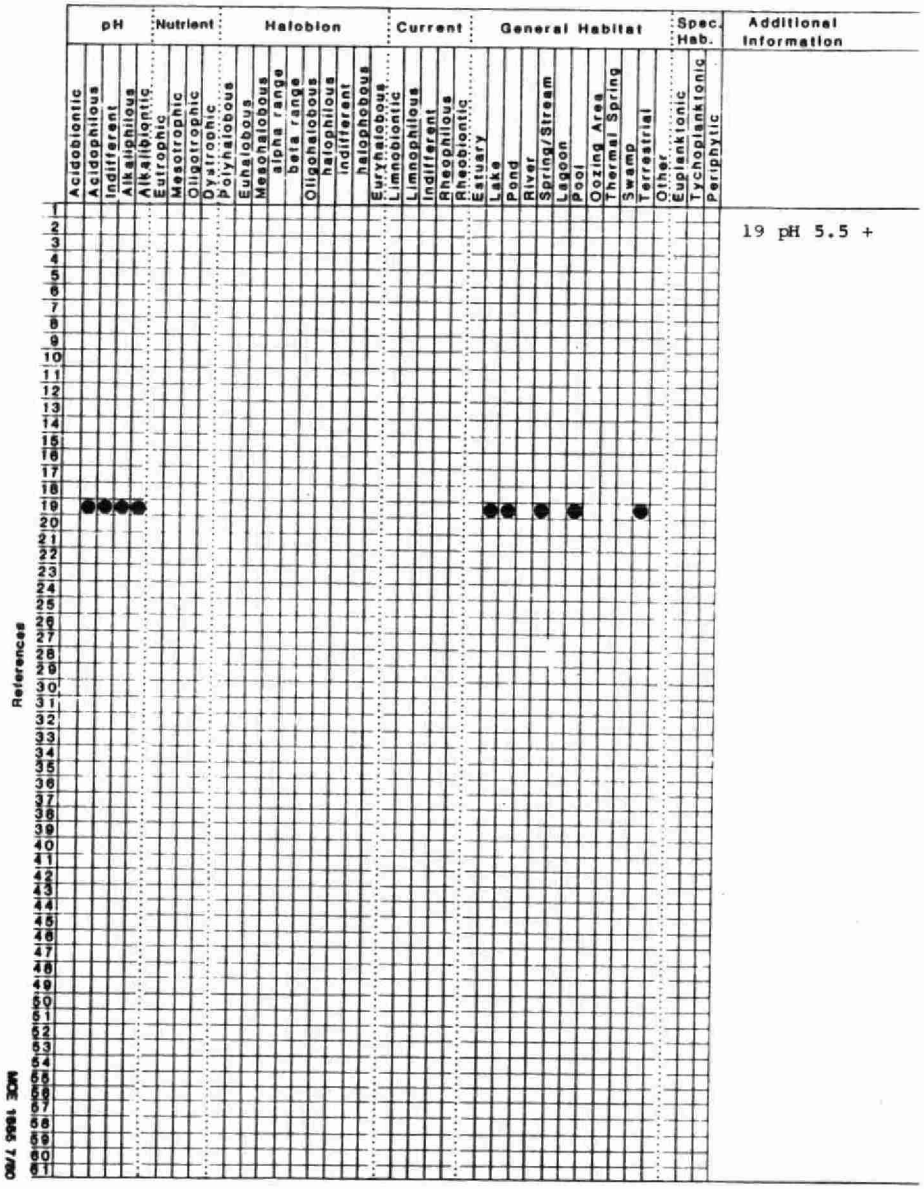
Taxon Pinnularia leptosoma Grun.

Synonym



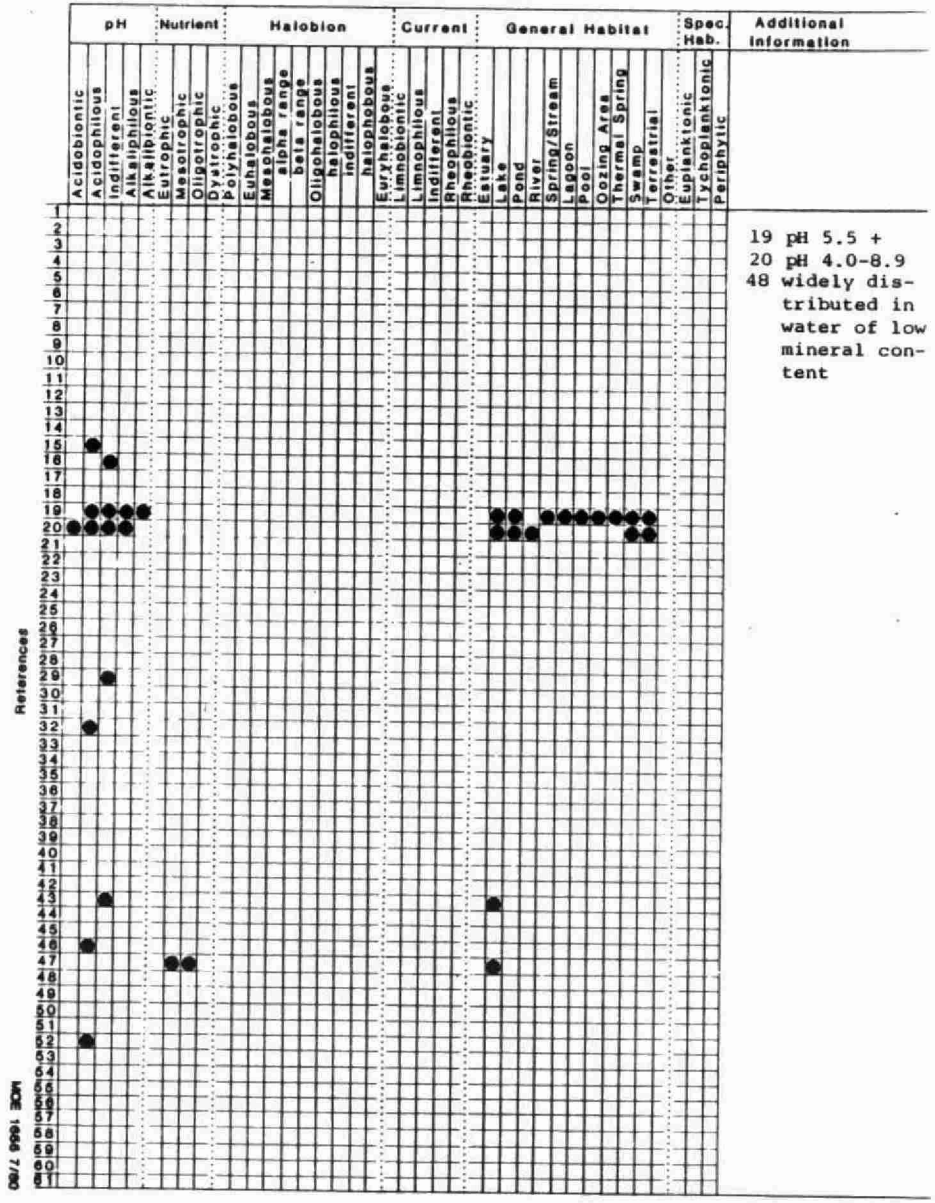
Taxon Pinnularia lundii Hust.

Synonym



Taxon Pinnularia maior (Kutz.) Rabh. var. maior

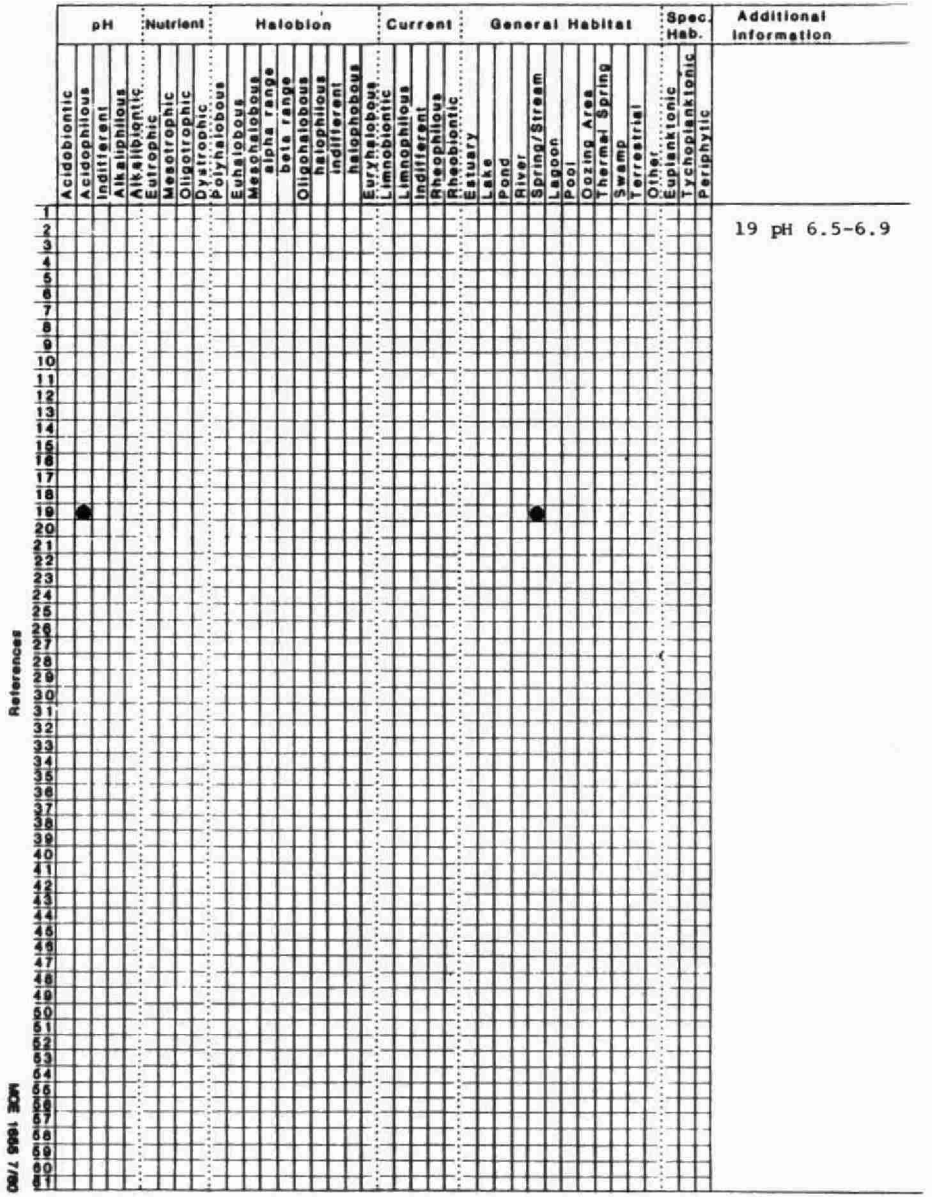
Synonym



19 pH 5.5 +
20 pH 4.0-8.9
48 widely distributed in water of low mineral content

Taxon Pinnularia maior f. hyalina Hust.

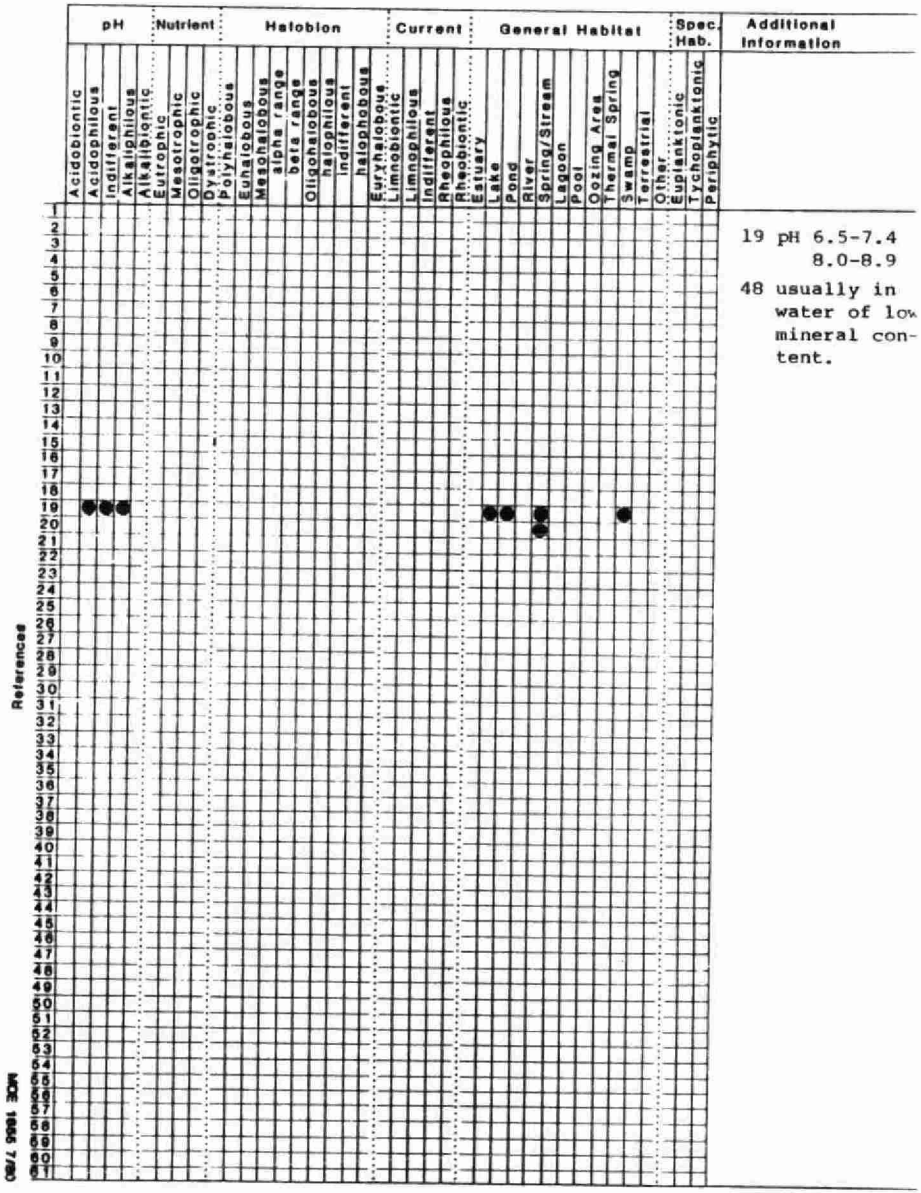
Synonym



19 pH 6.5-6.9

Taxon Pinnularia mesogongyla Ehr.

Synonym Pinnularia gibba var. mesogongyla (Ehr.) Hust.

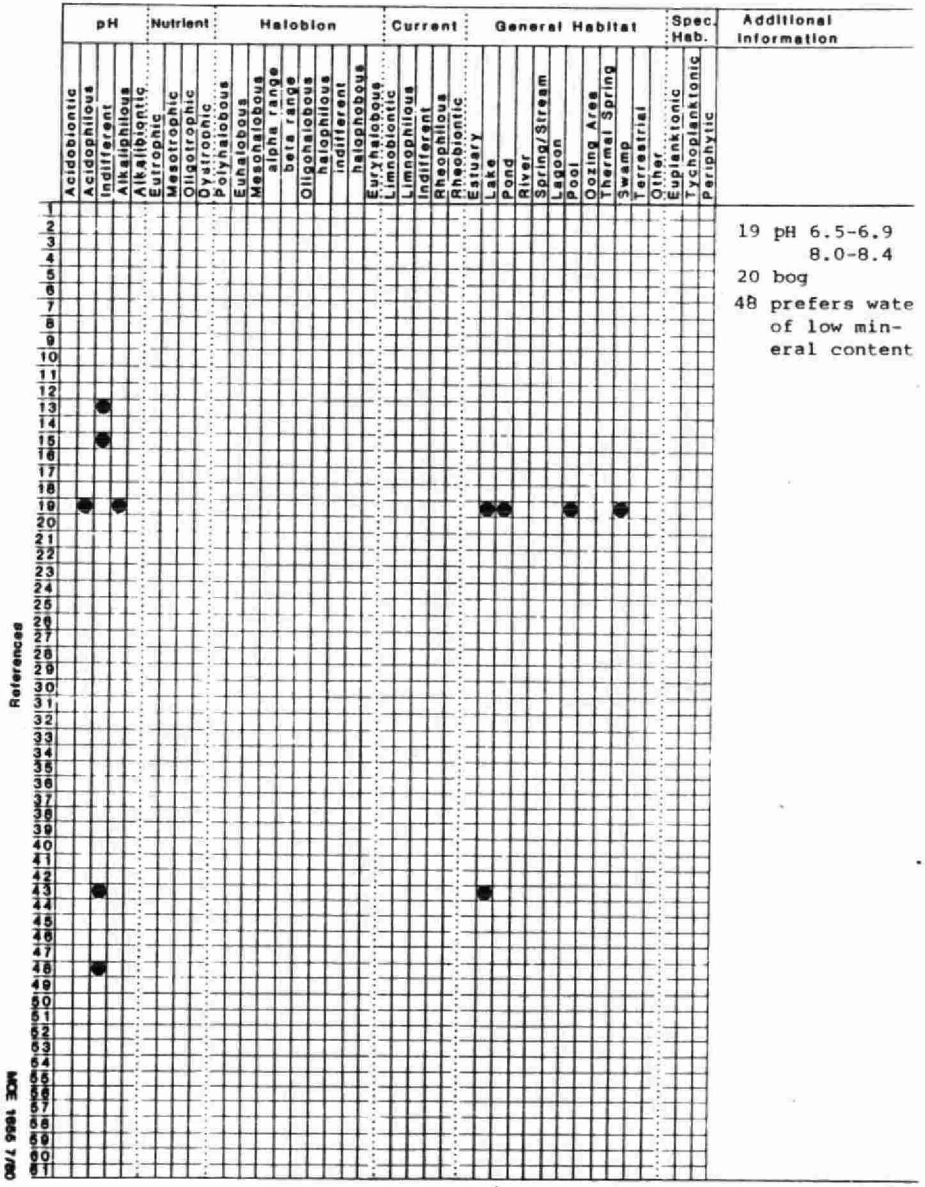


19 pH 6.5-7.4
8.0-8.9

48 usually in water of low mineral content.

Taxon Pinnularia mesolepta var. angusta Cl.

Synonym Pinnularia mesolepta f. angusta Cl. ? 19,20



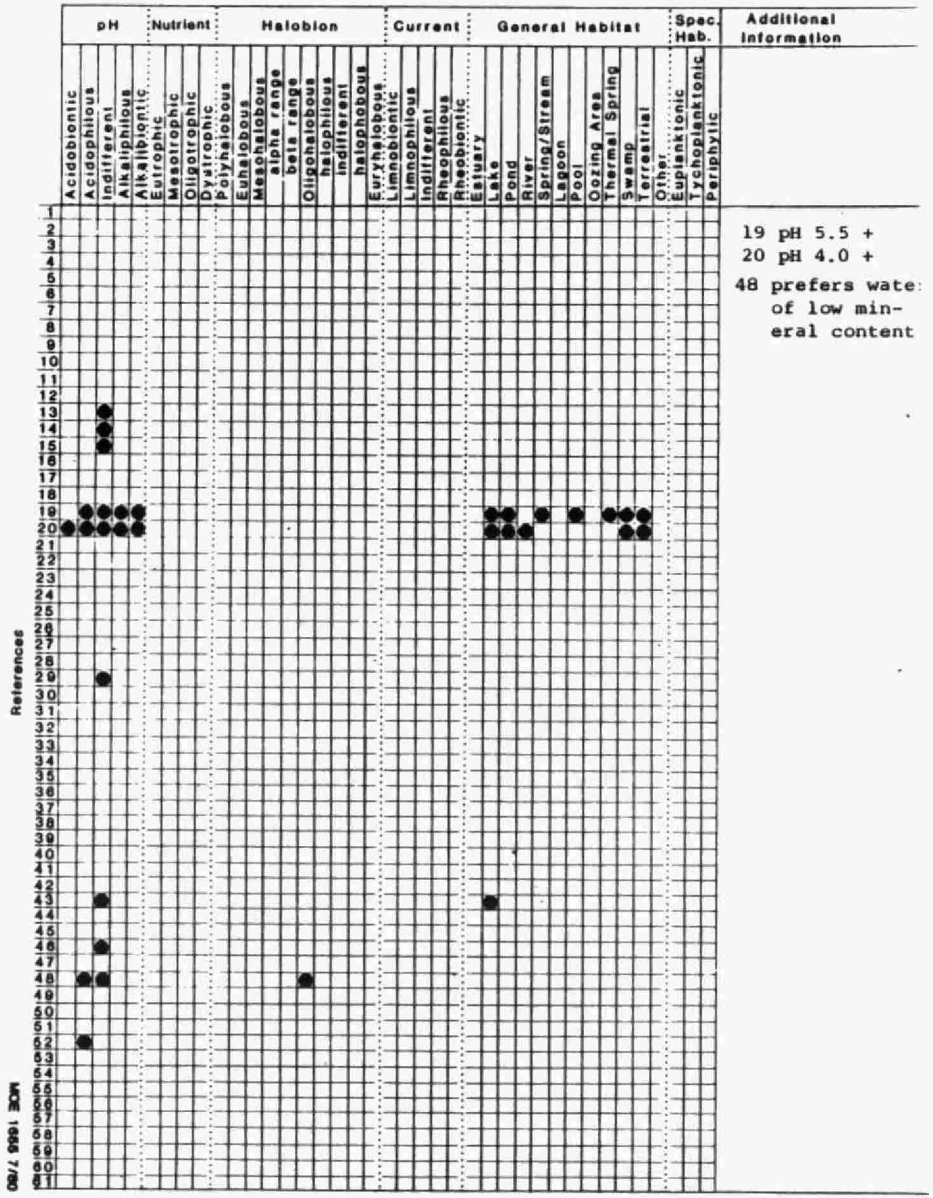
19 pH 6.5-6.9
8.0-8.4

20 bog

48 prefers water of low mineral content

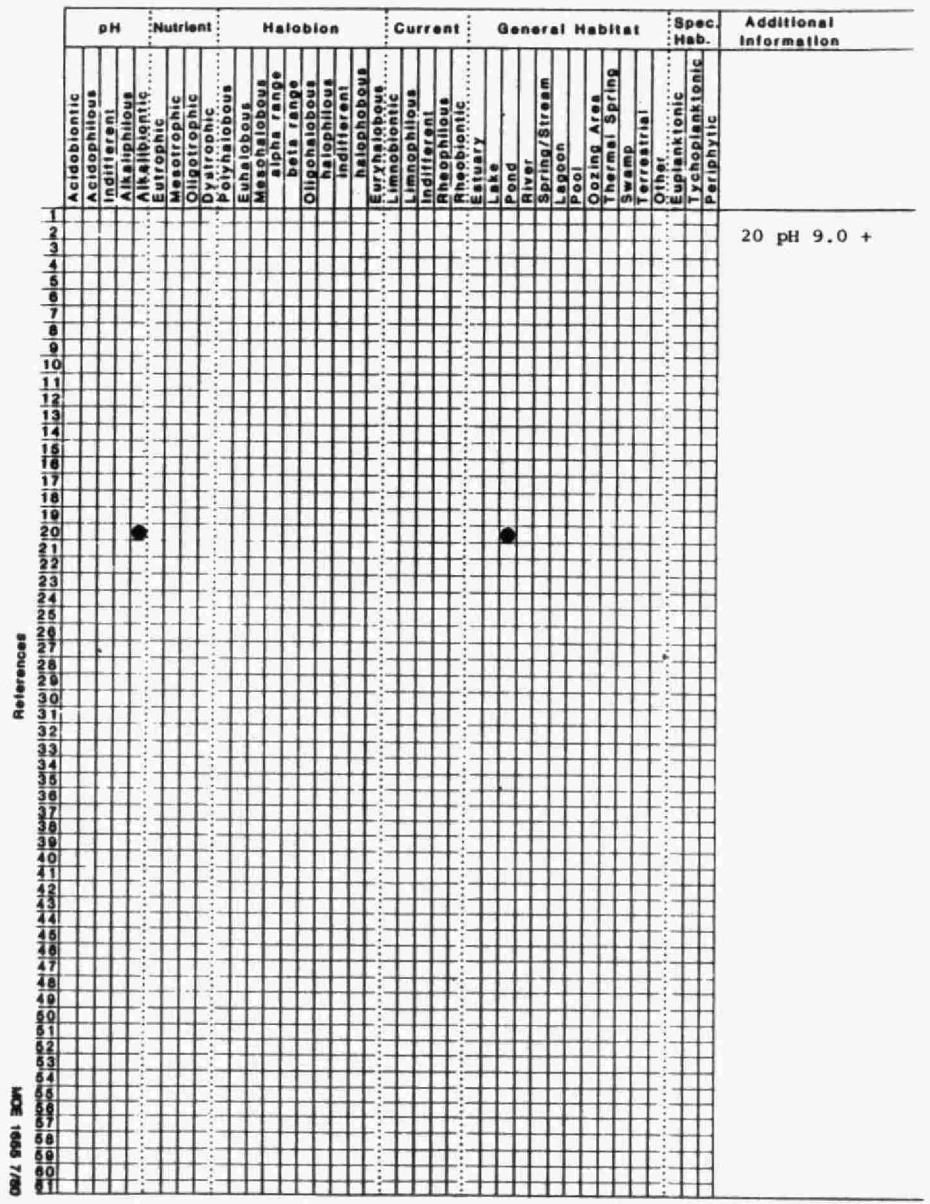
Taxon Pinnularia mesolepta (Ehr.) W. Sm. var. mesolepta

Synonym



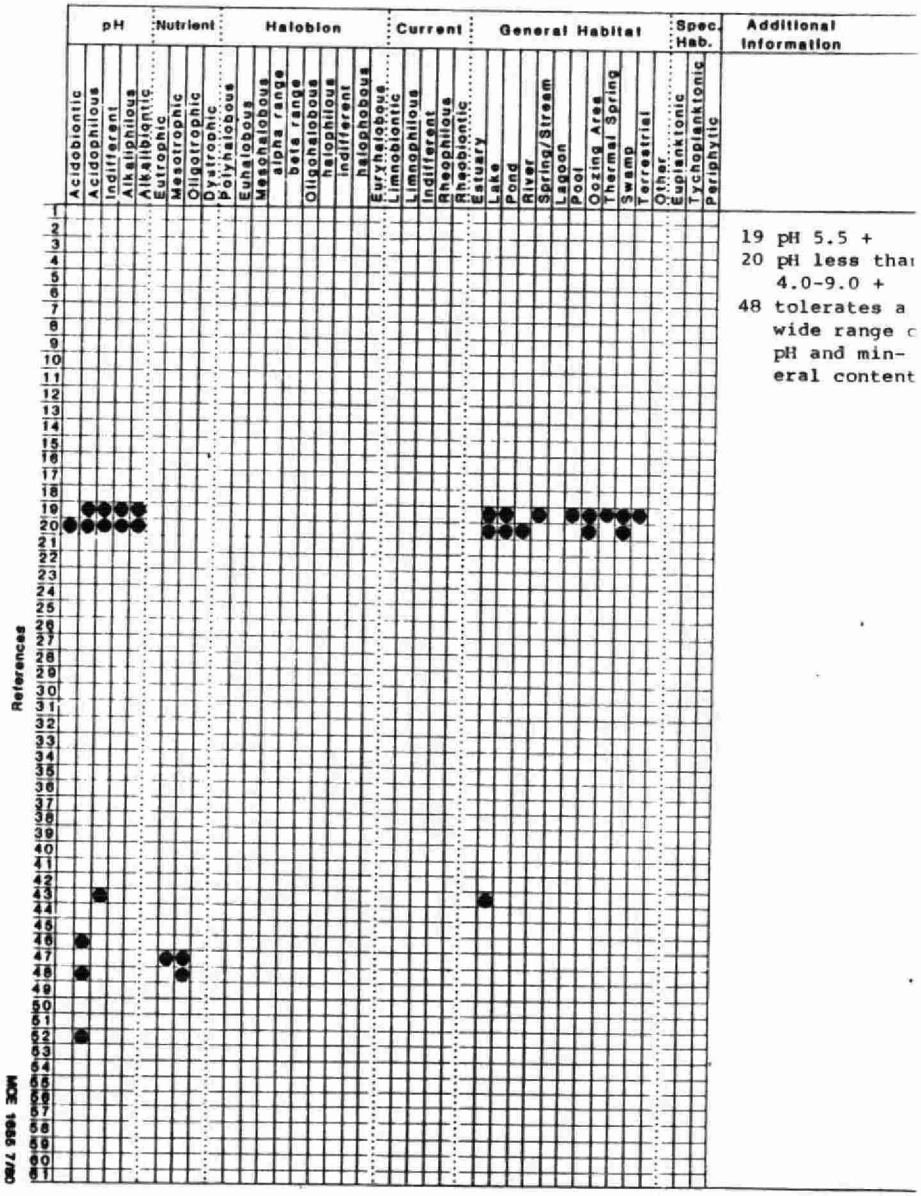
Taxon Pinnularia microstauron var. brebissonii f. lata Hust.

Synonym



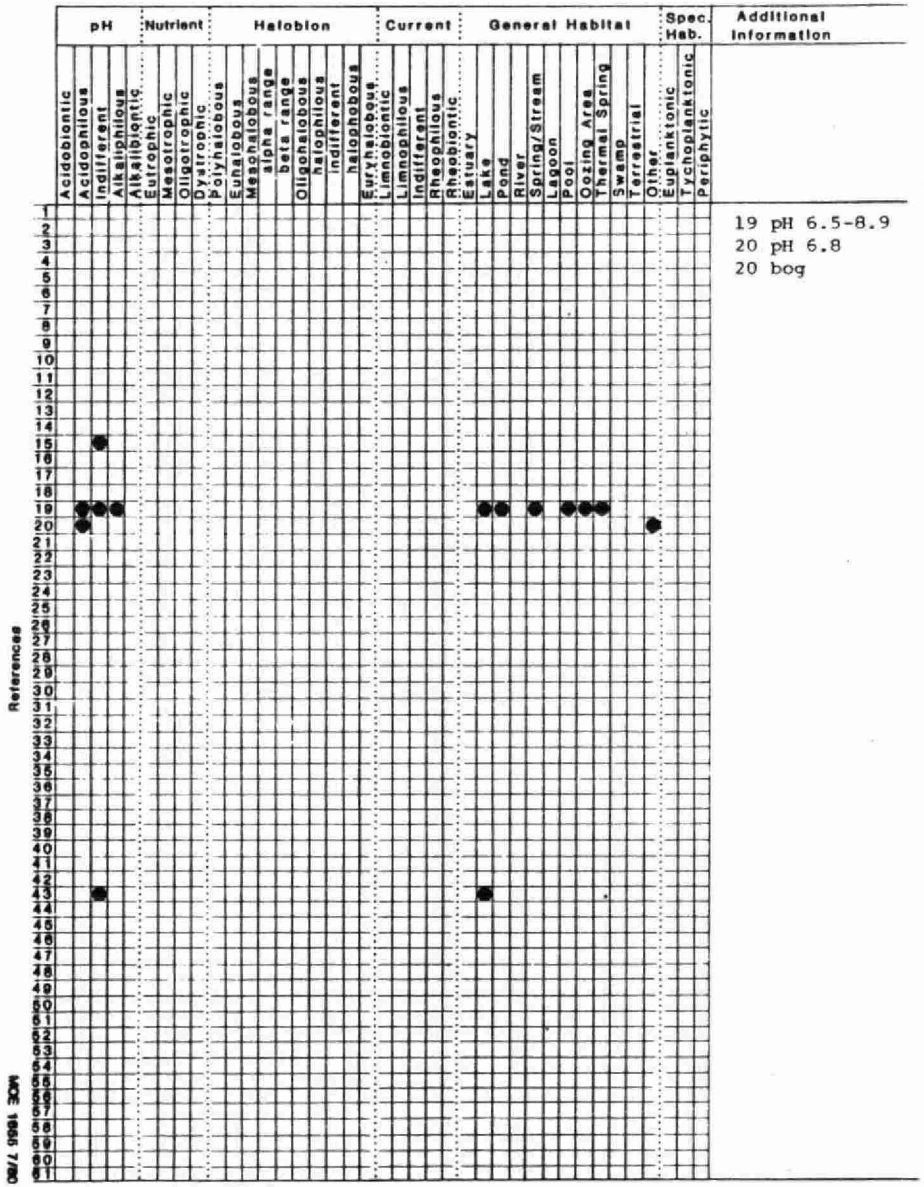
Taxon Pinnularia microstauron (Ehr.) Cl. var. microstauron

Synonym



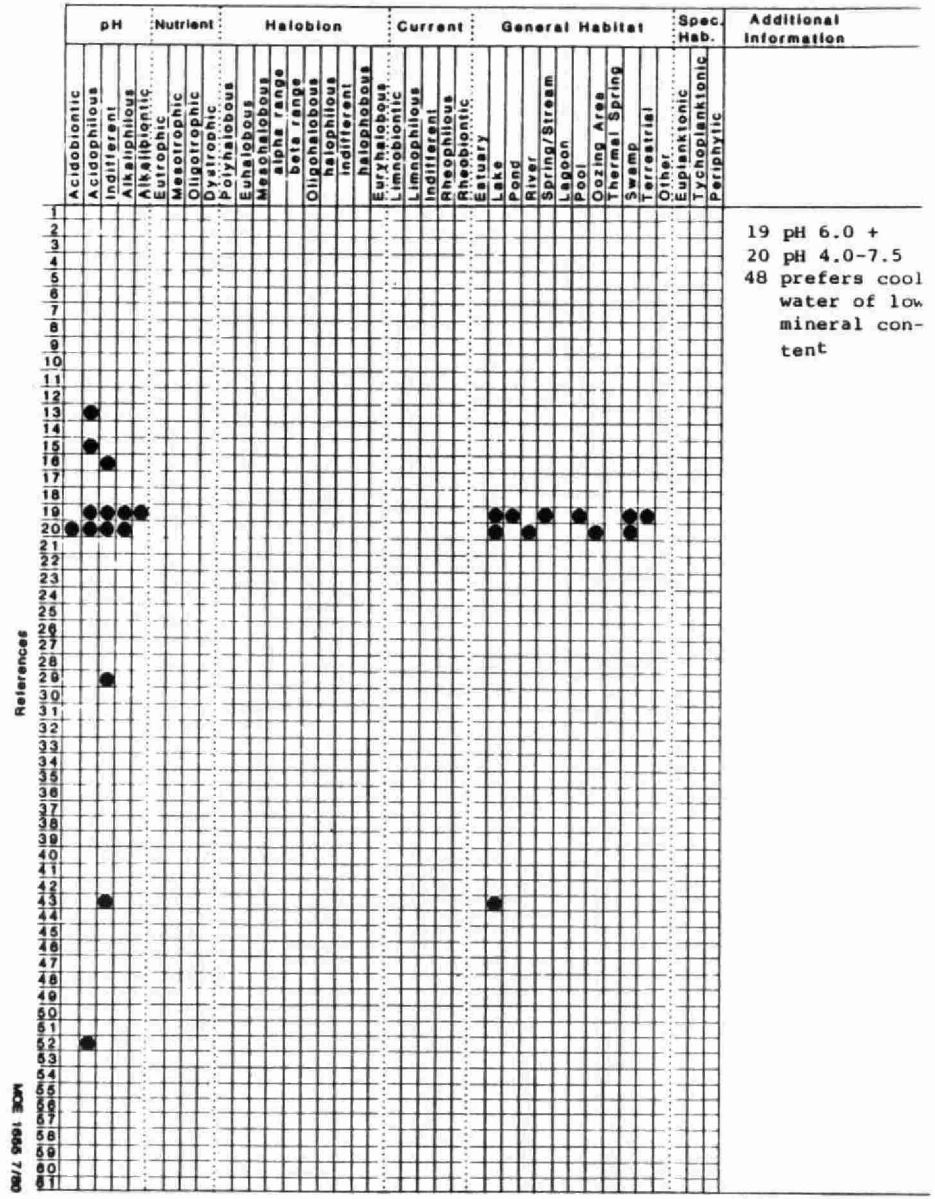
Taxon Pinnularia molaris (Grun.) Cl.

Synonym Navicula macra Grun.



Taxon Pinnularia nodosa (Ehr.) W. Sm.

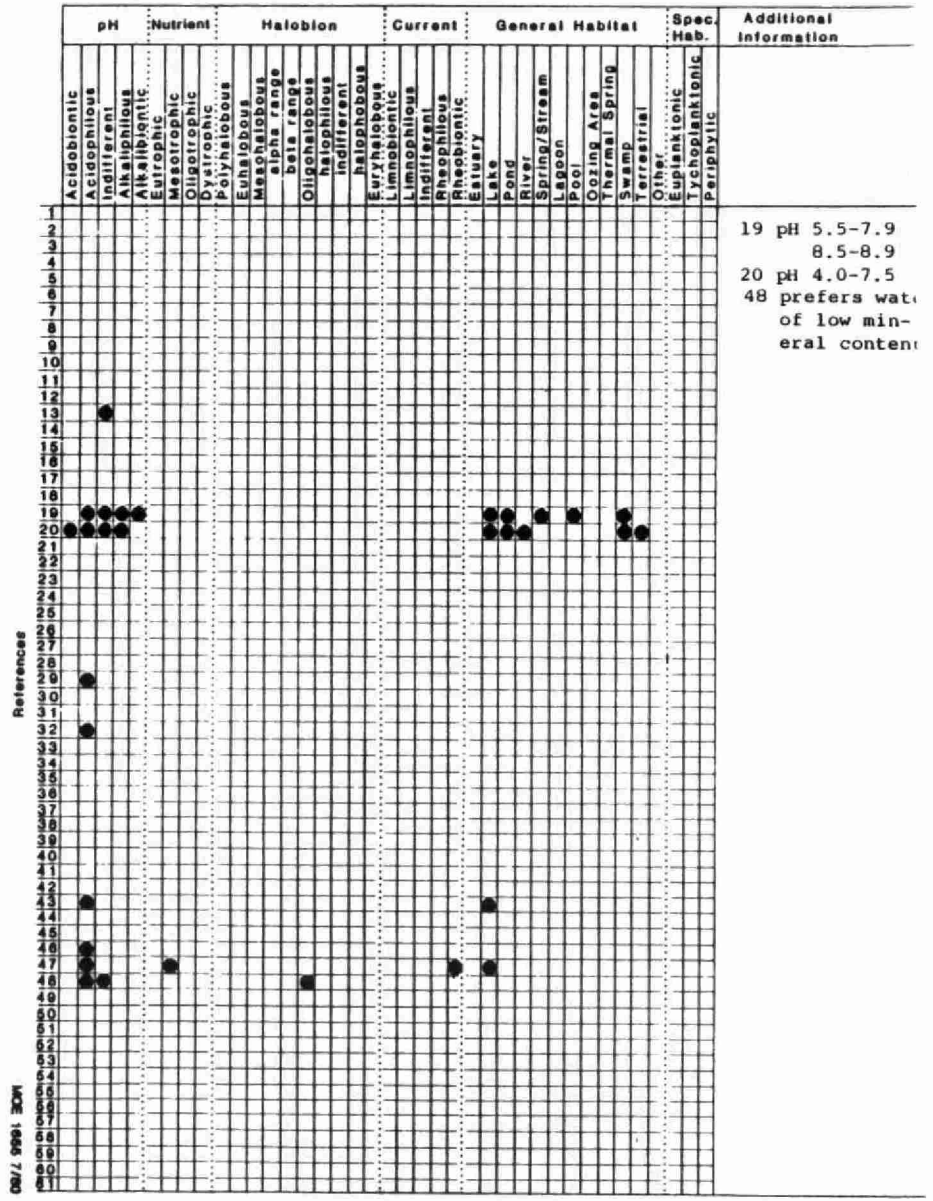
Synonym



19 pH 6.0 +
20 pH 4.0-7.5
48 prefers cool water of low mineral content

Taxon Pinnularia nobilis (Ehr.) Ehr.

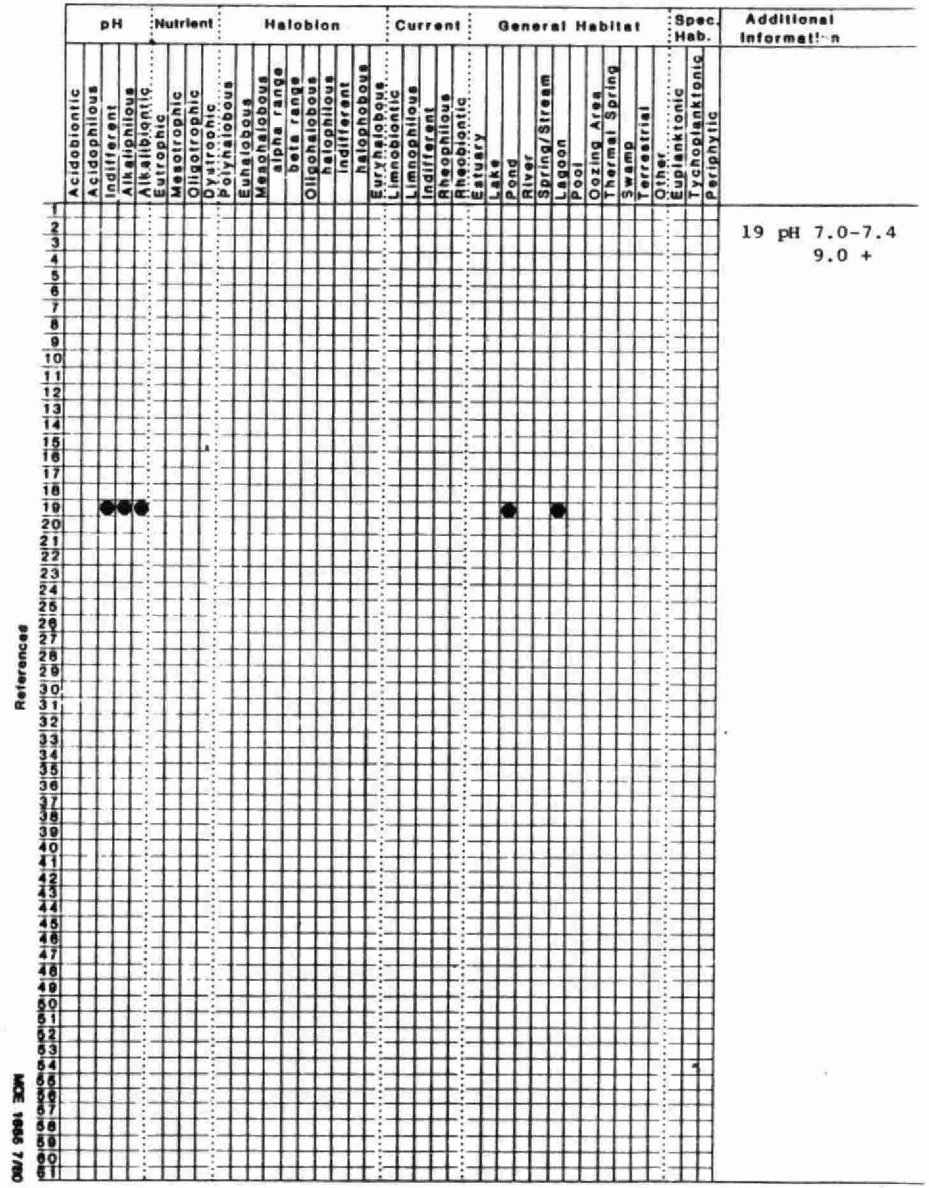
Synonym



19 pH 5.5-7.9
8.5-8.9
20 pH 4.0-7.5
48 prefers wat
of low min-
eral conten

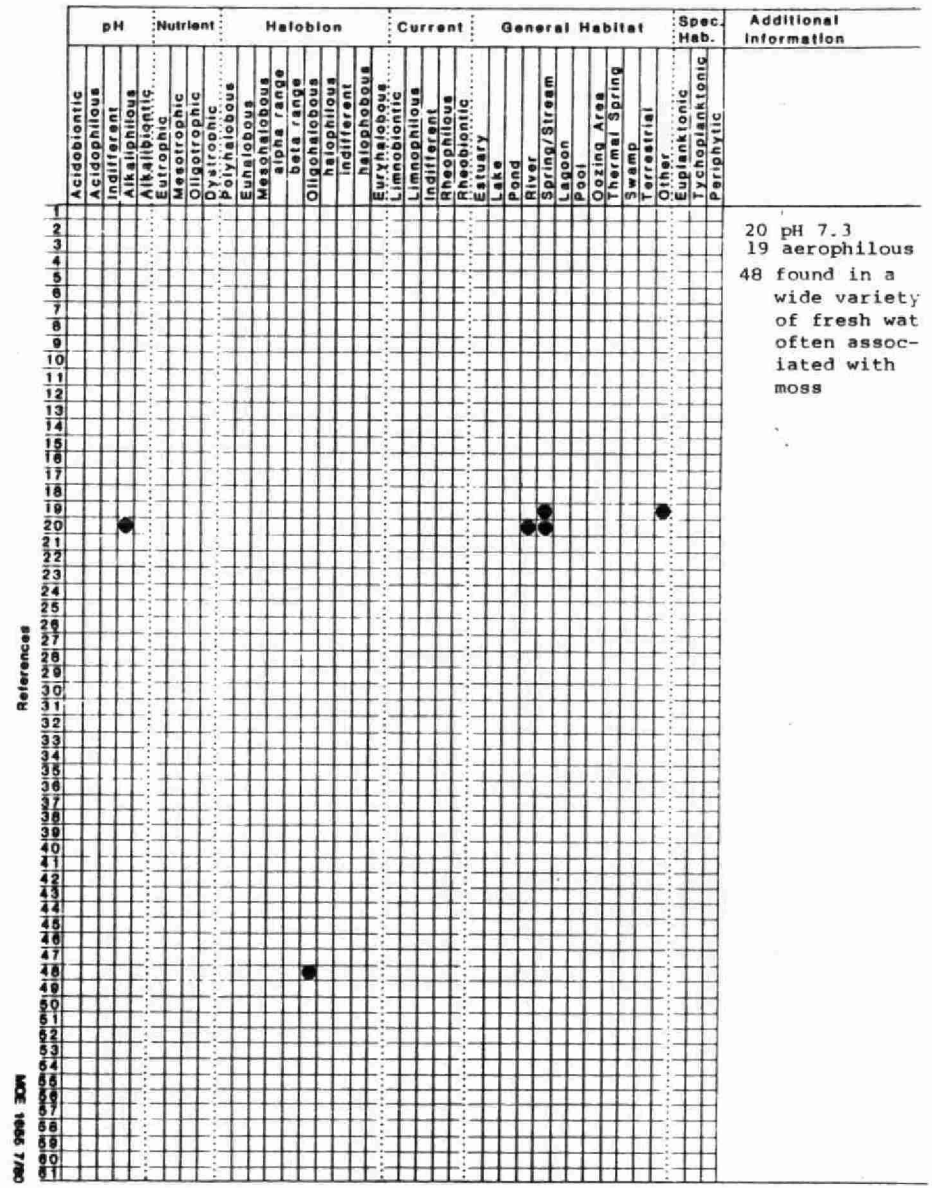
Taxon Pinnularia notata (Perag.& Herib.) Cl.-Eul.

Synonym



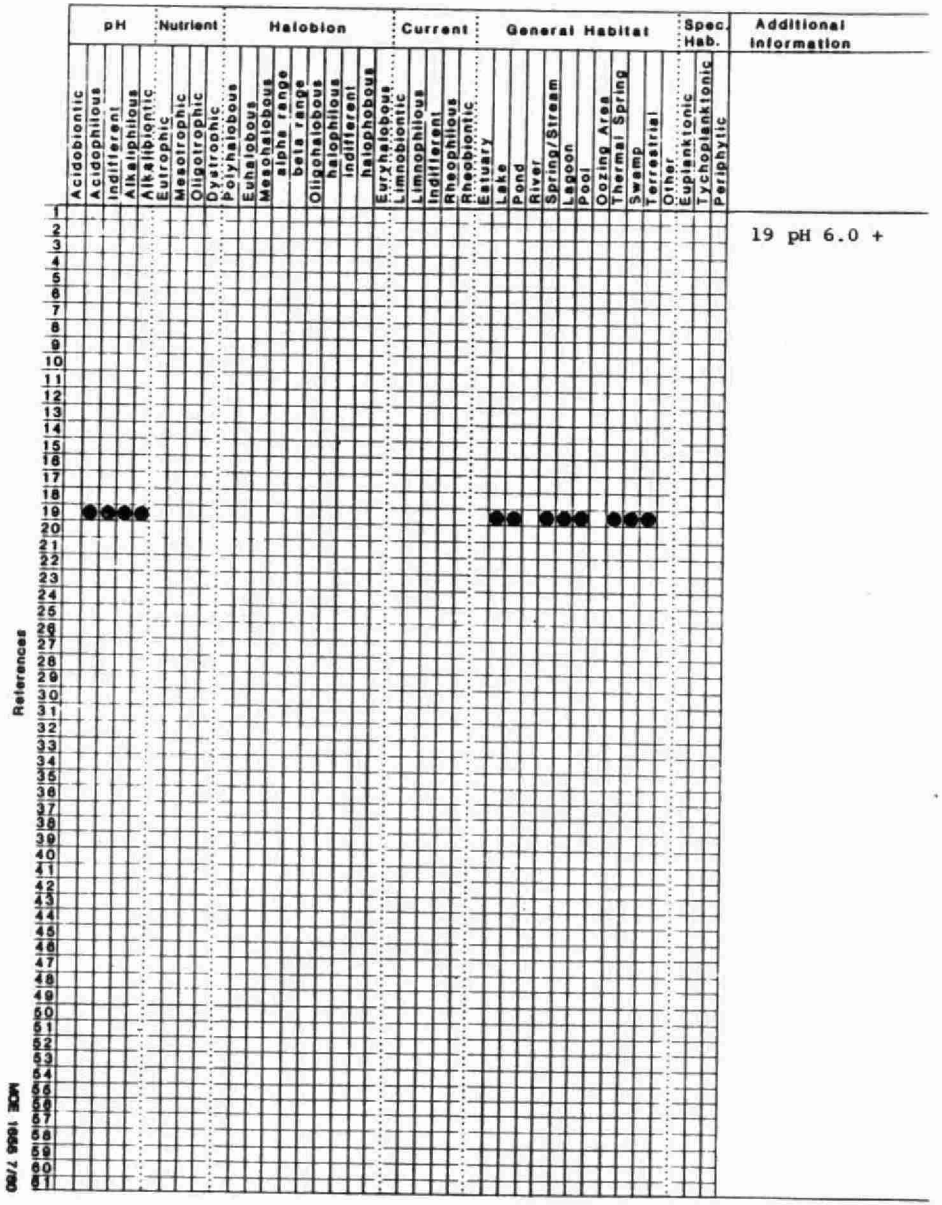
Taxon Pinnularia obscura Krasske

Synonym



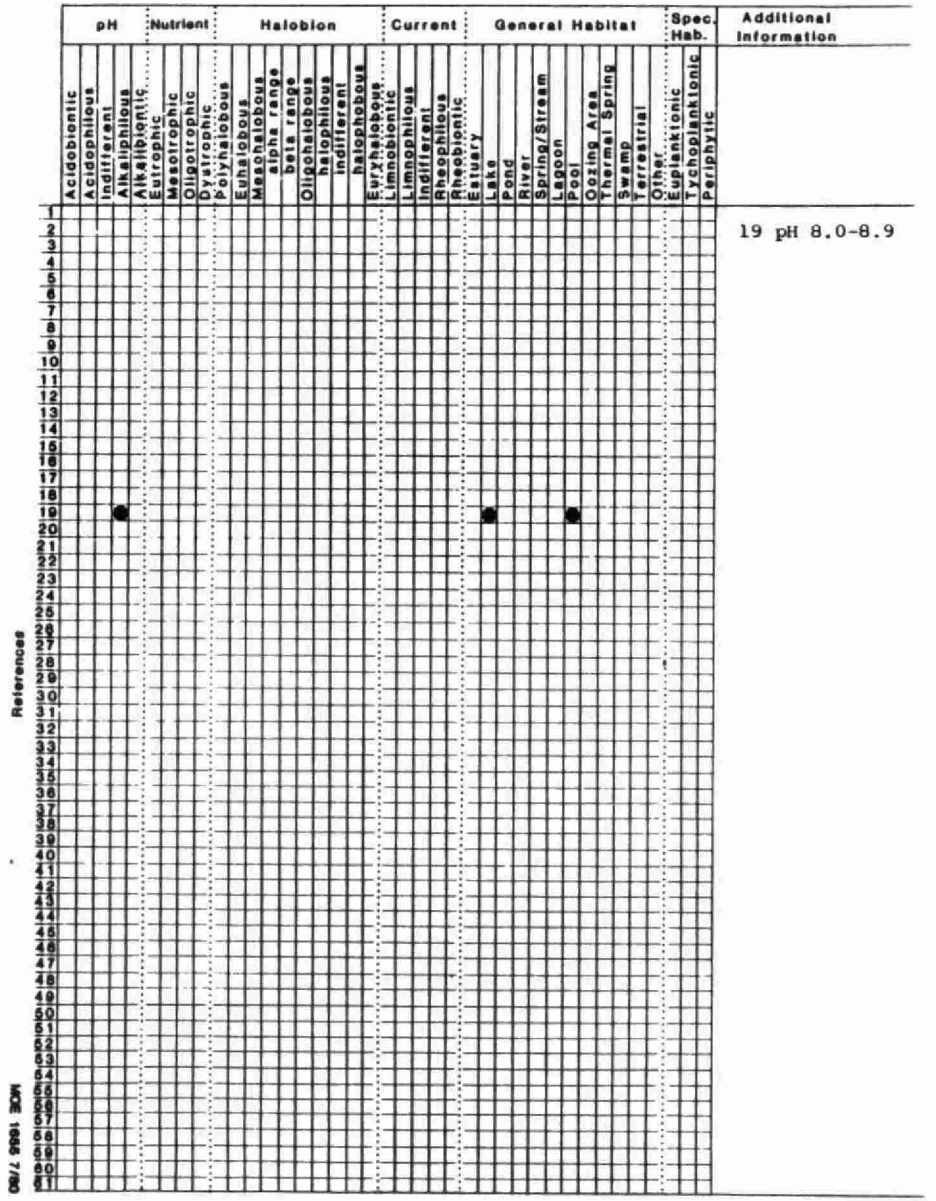
Taxon Pinnularia parva var. minuta Østr.

Synonym



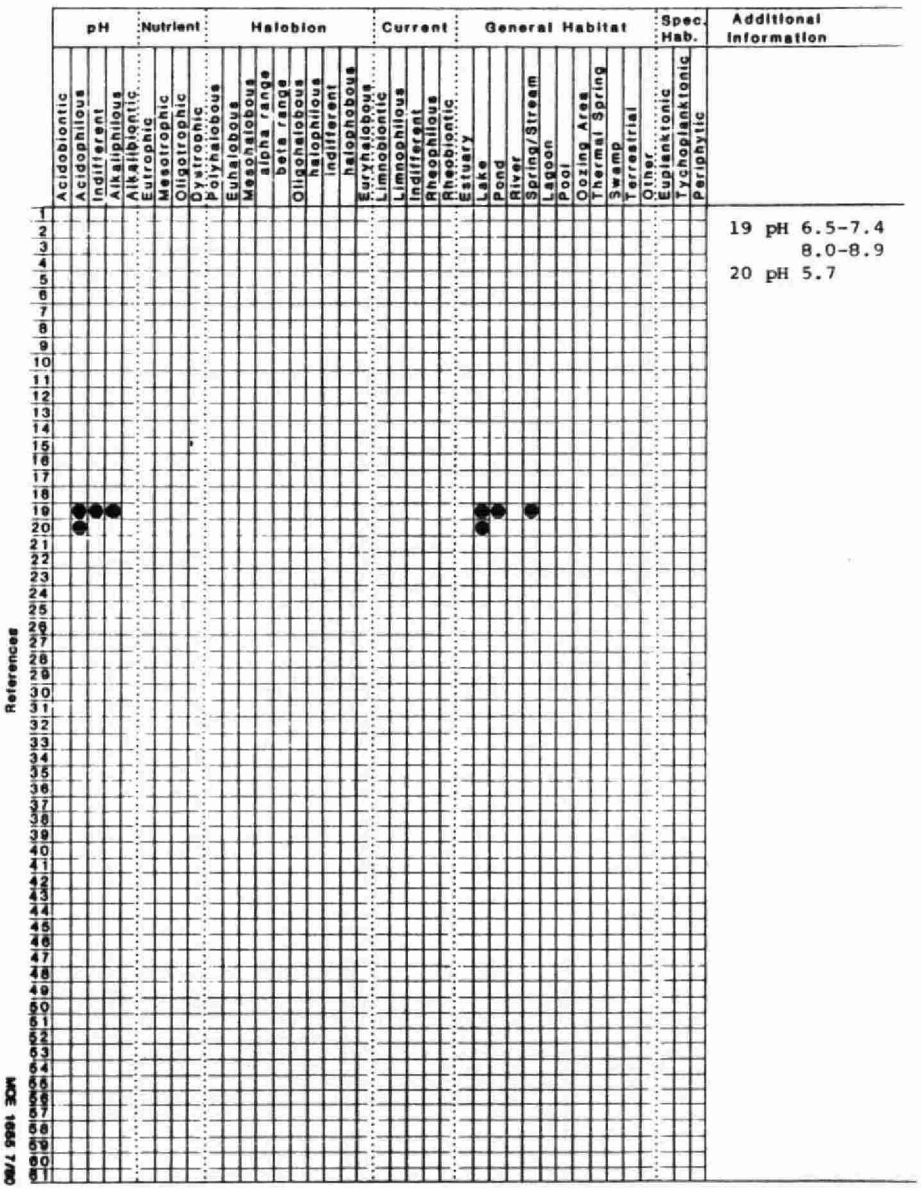
Taxon Pinnularia parva var. lagerstedtii f. interrupta Peter.

Synonym



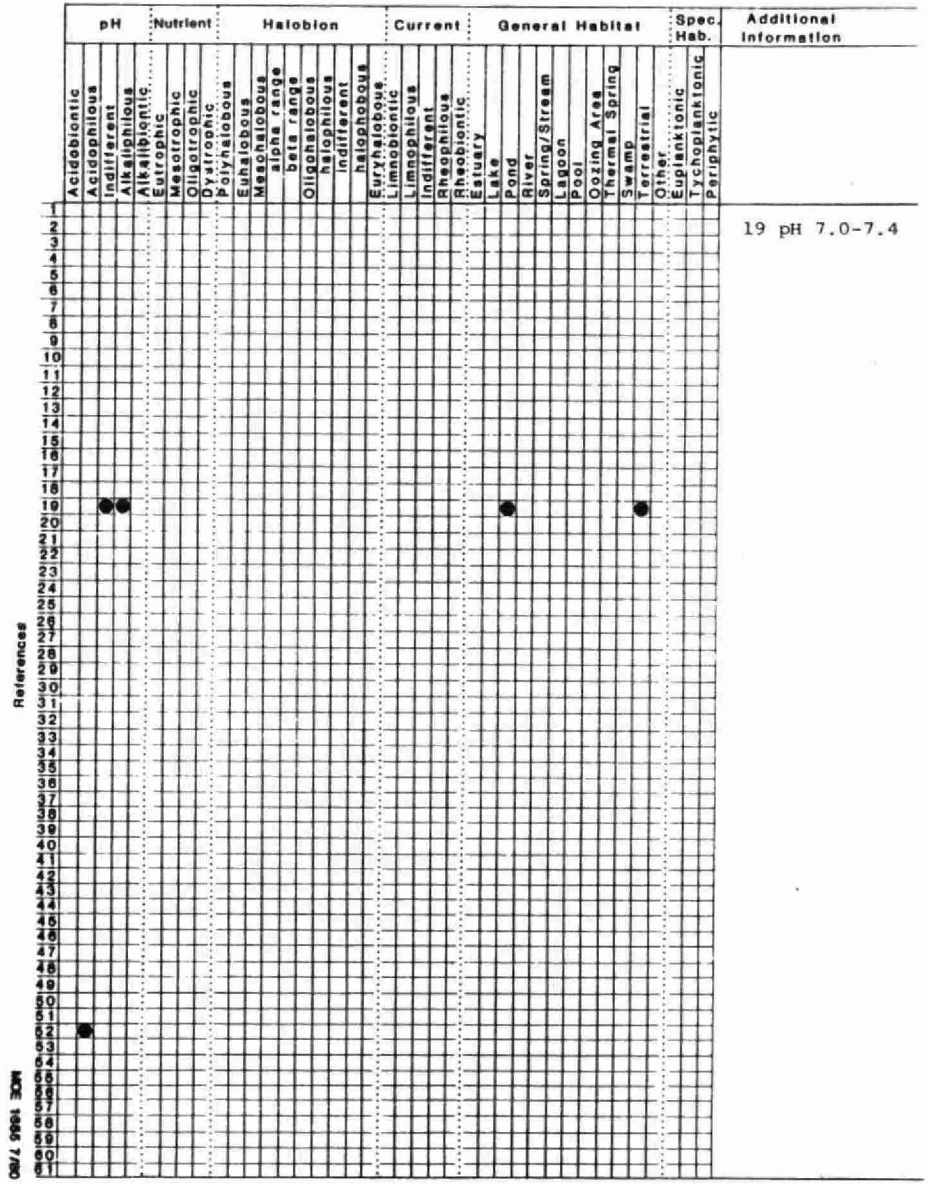
Taxon Pinnularia platycephala (Ehr.) Cl.

Synonym



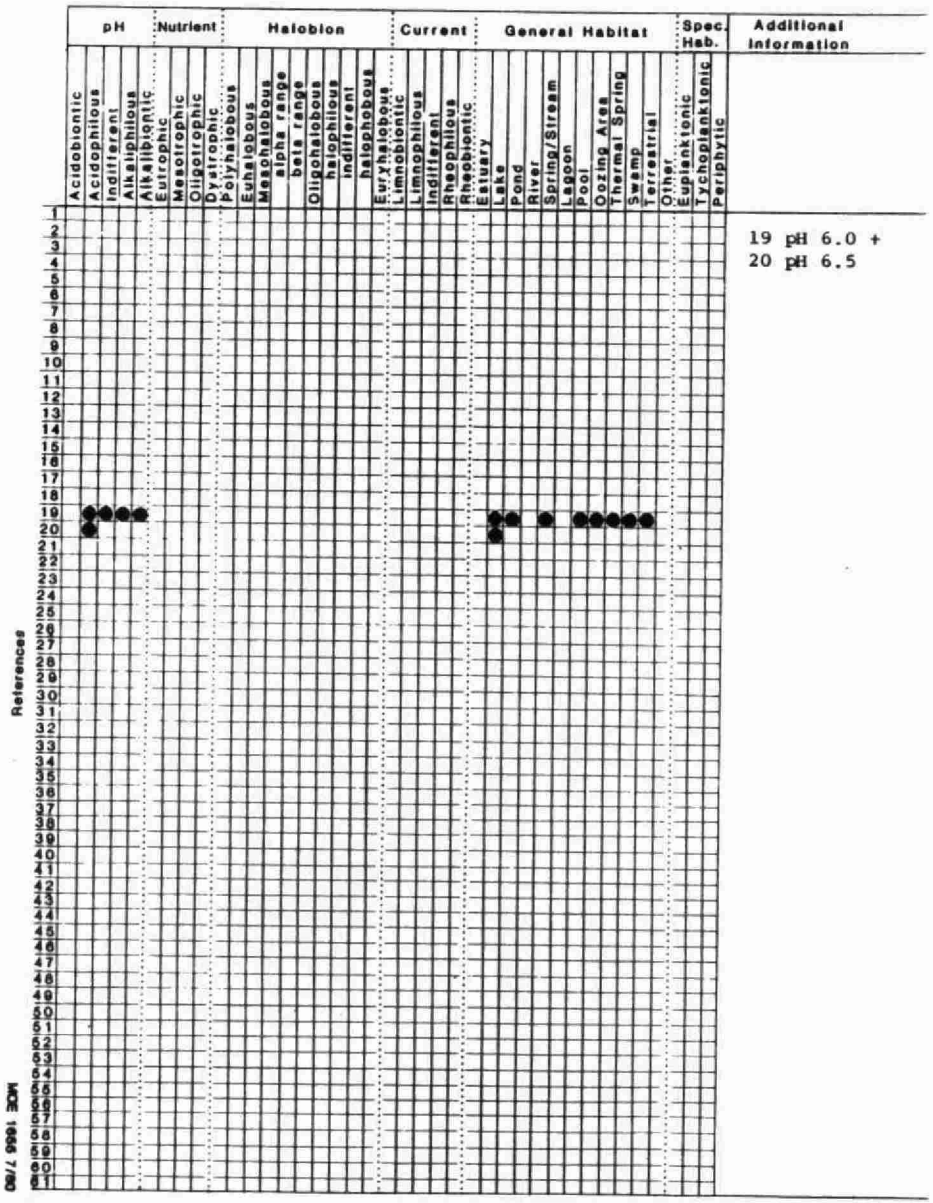
Taxon Pinnularia polyonca (Breb.) W. Sm.

Synonym



Taxon Pinnularia pulchra Østr.

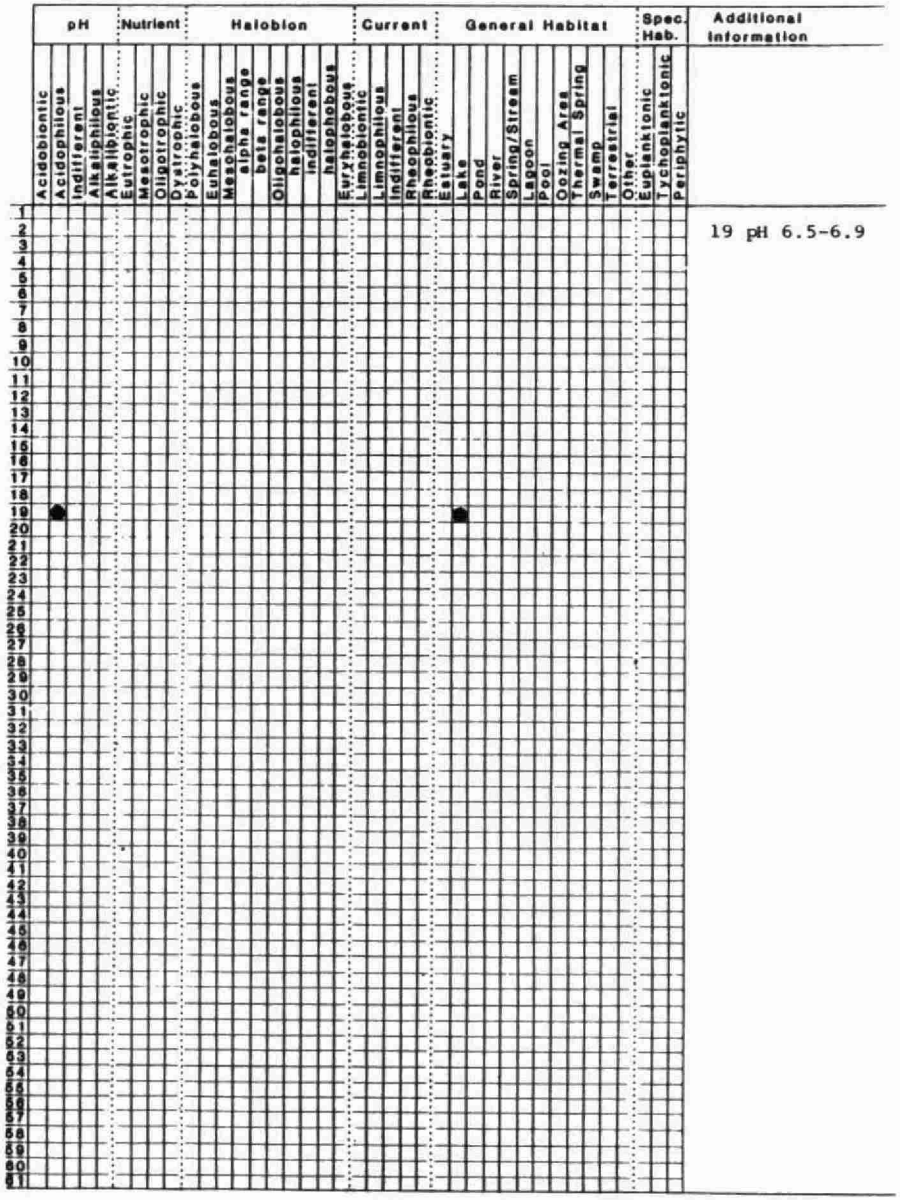
Synonym



19 pH 6.0 +
20 pH 6.5

Taxon Pinnularia stomatophora var. gibbosa Hust.

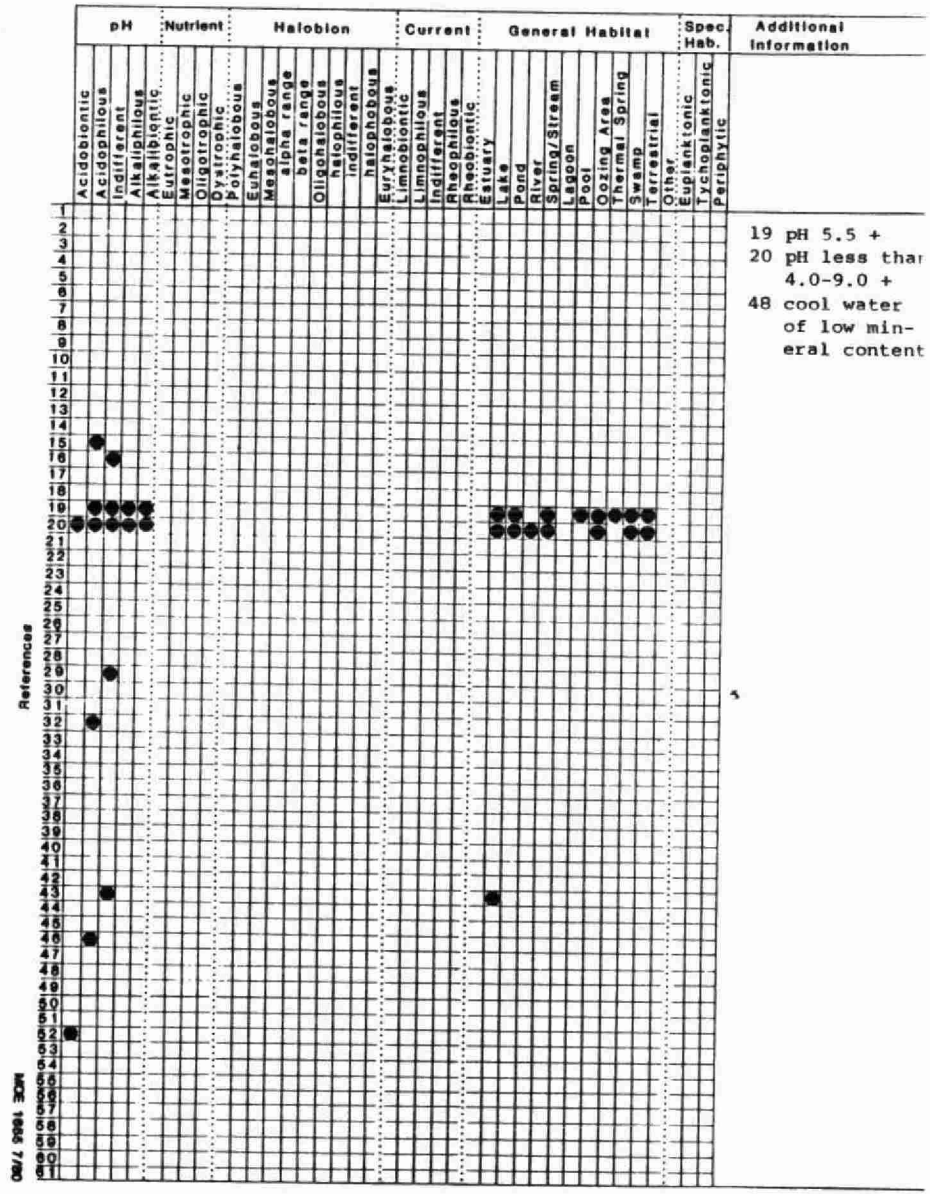
Synonym



19 pH 6.5-6.9

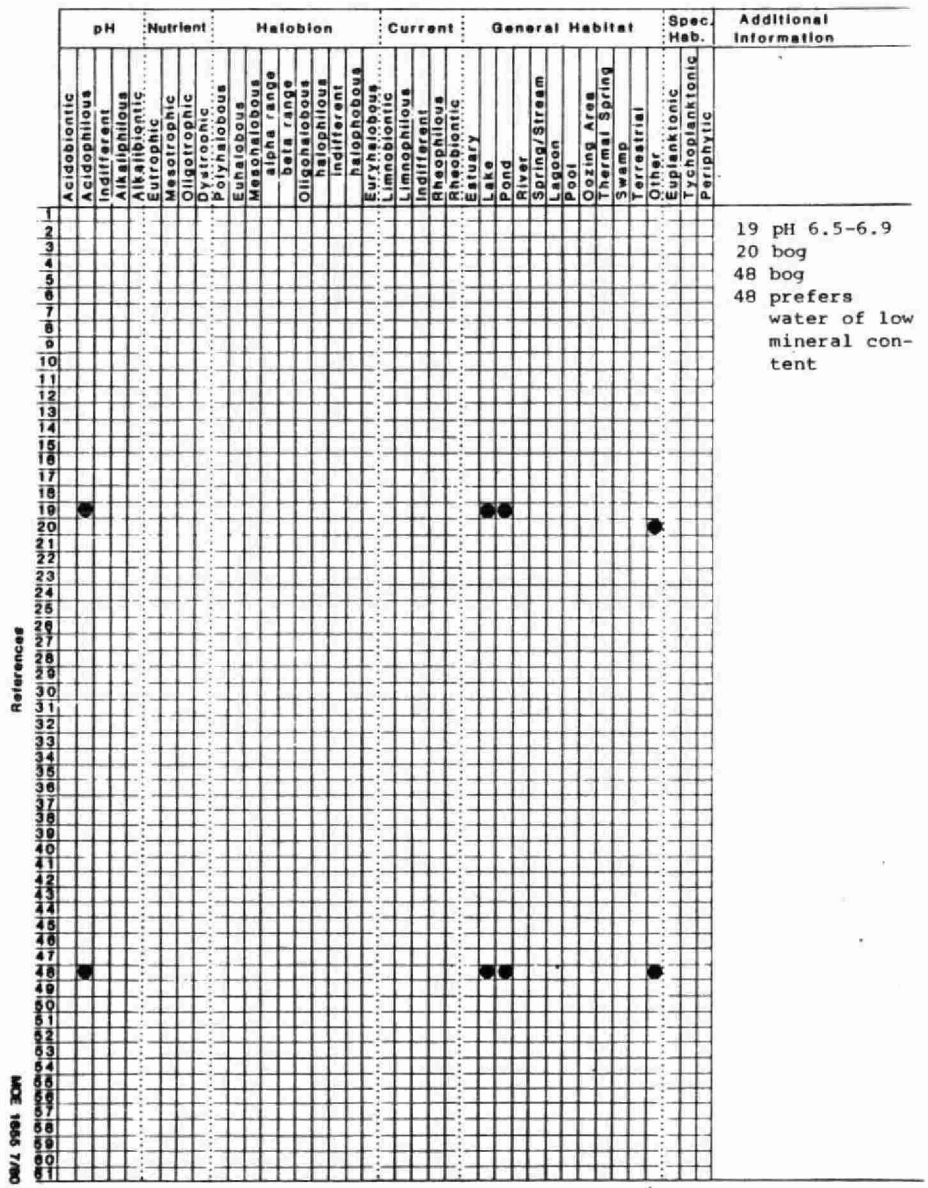
Taxon Pinnularia stomatophora (Grun.) Cl. var. stomatophora

Synonym



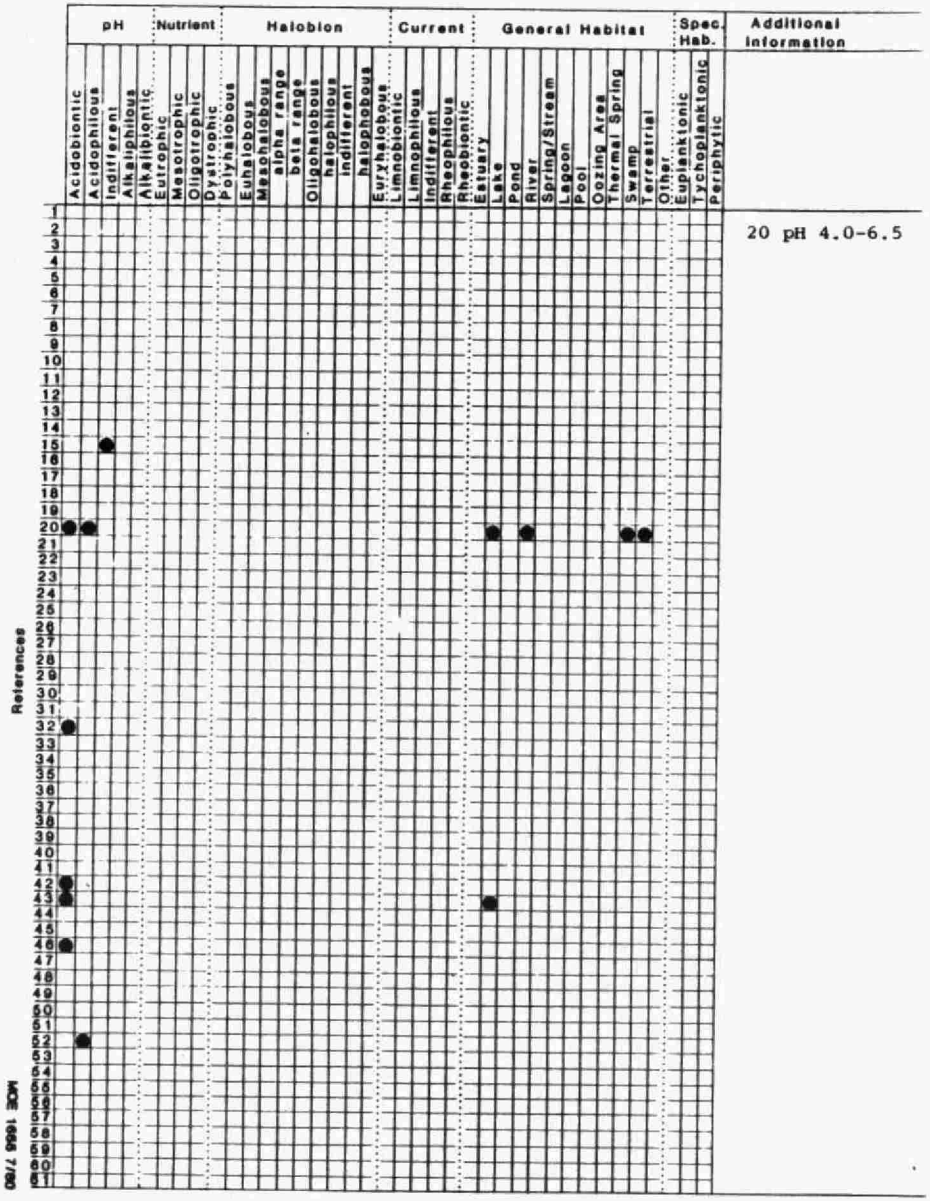
Taxon Pinnularia streptoraphe Cl.

Synonym



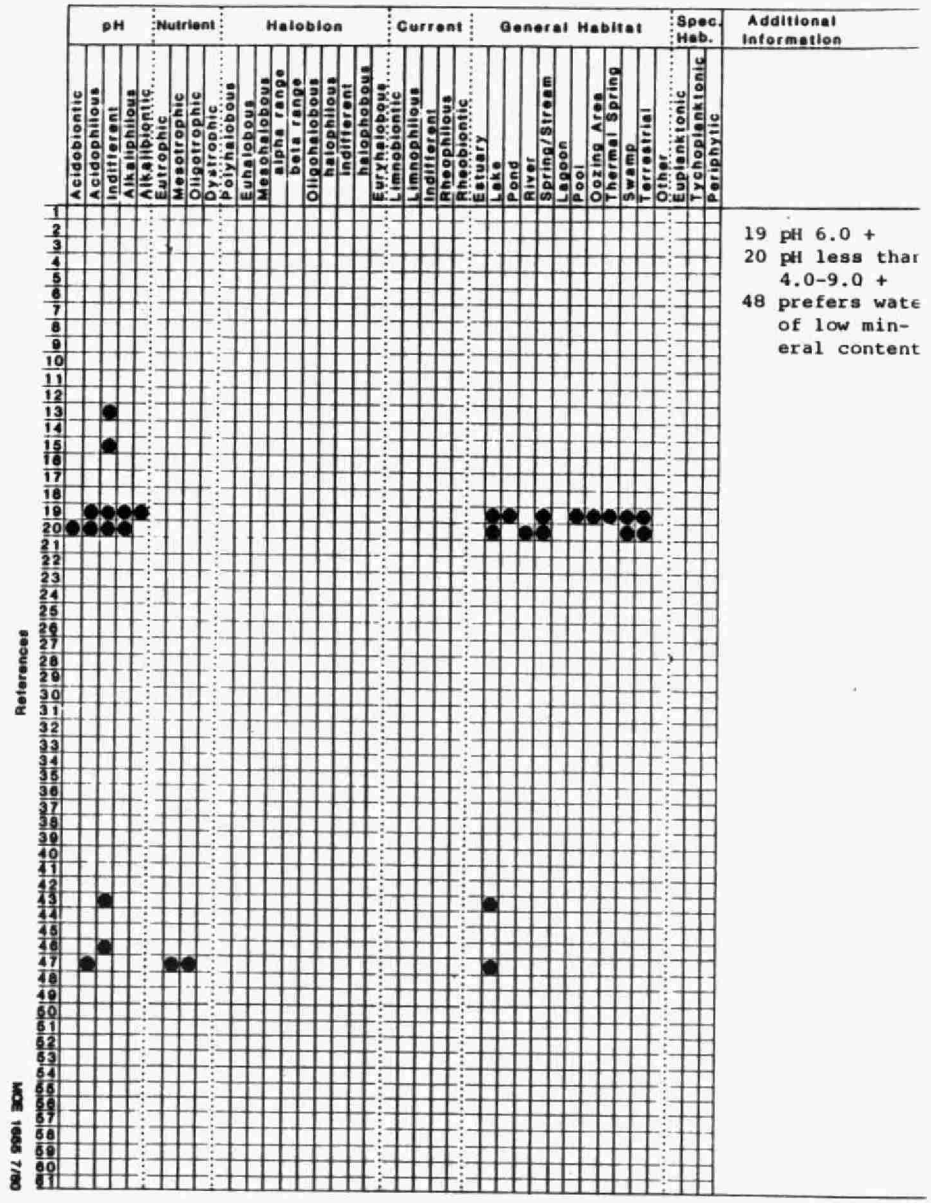
Taxon Pinnularia subcapitata var. hilseana (Janisch) O. Müll.

Synonym



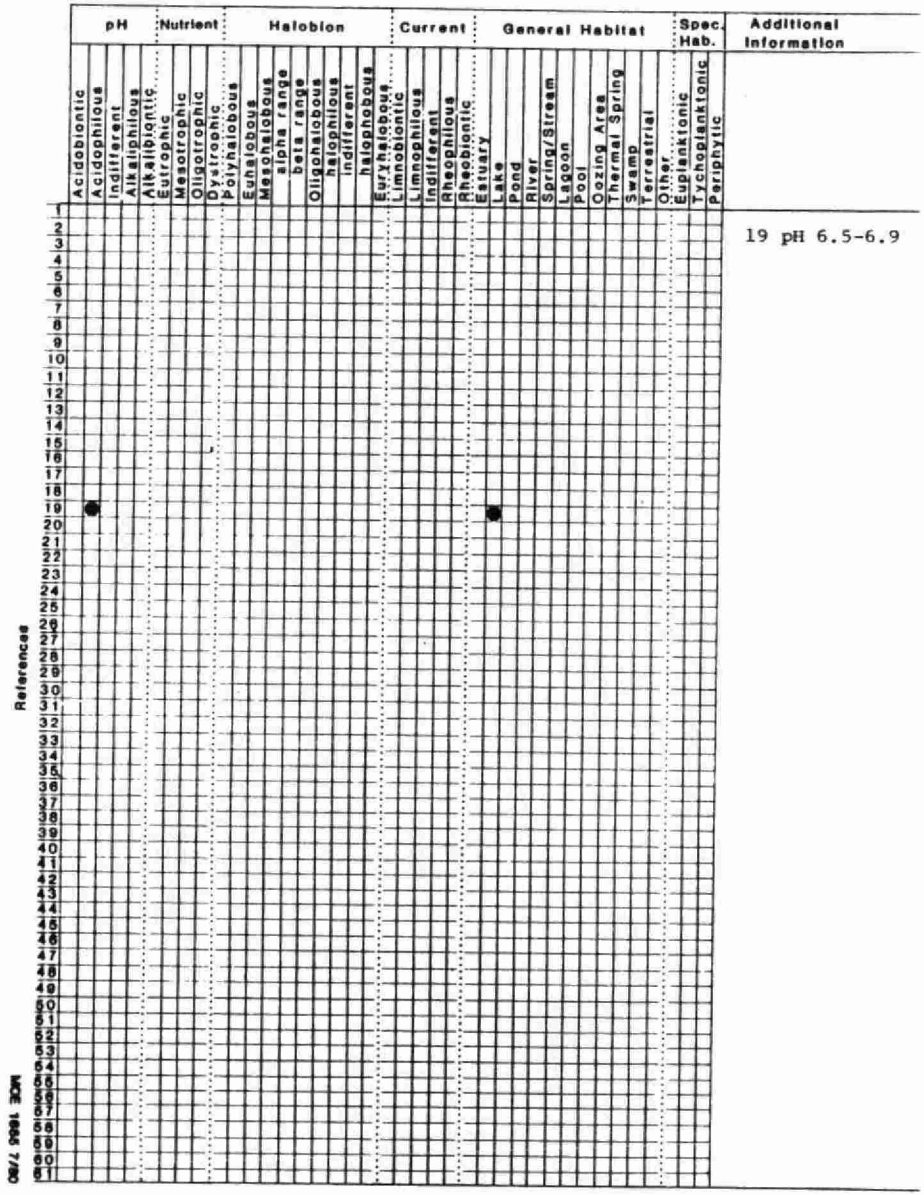
Taxon Pinnularia subcapitata Greg. var. subcapitata

Synonym



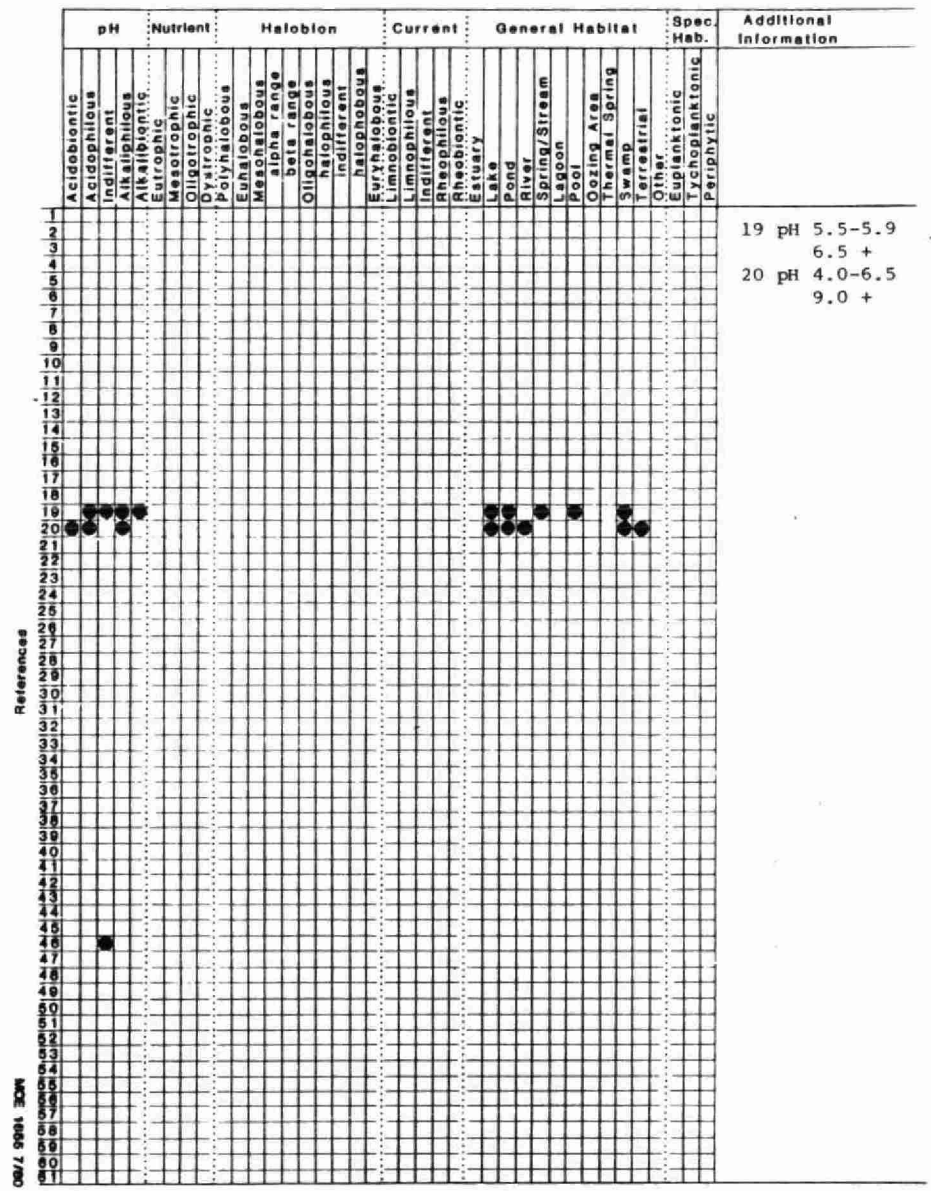
Taxon Pinnularia subrostrata Cl.

Synonym



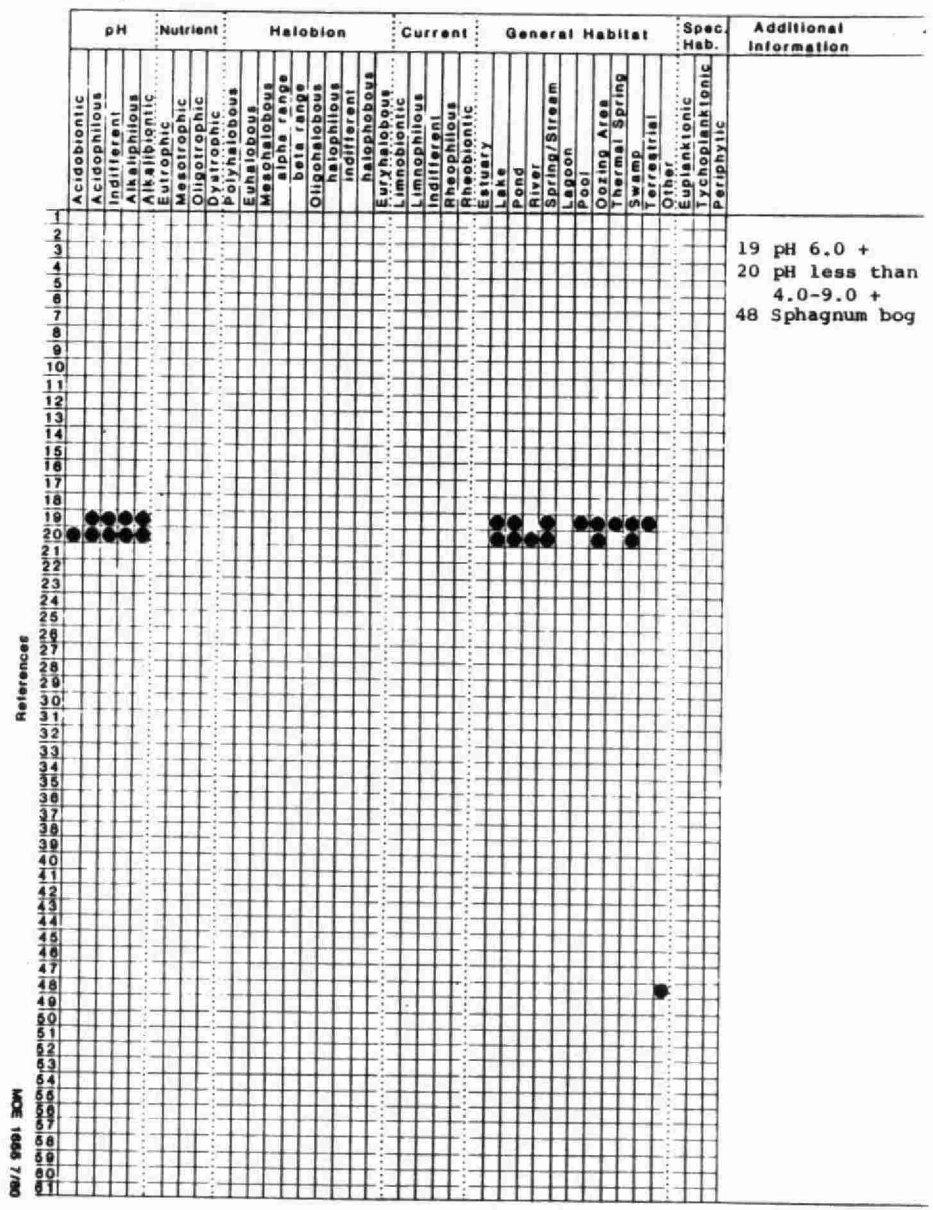
Taxon Pinnularia subsolaris (Grun.) Cl.

Synonym



Taxon Pinnularia sudetica Hilse

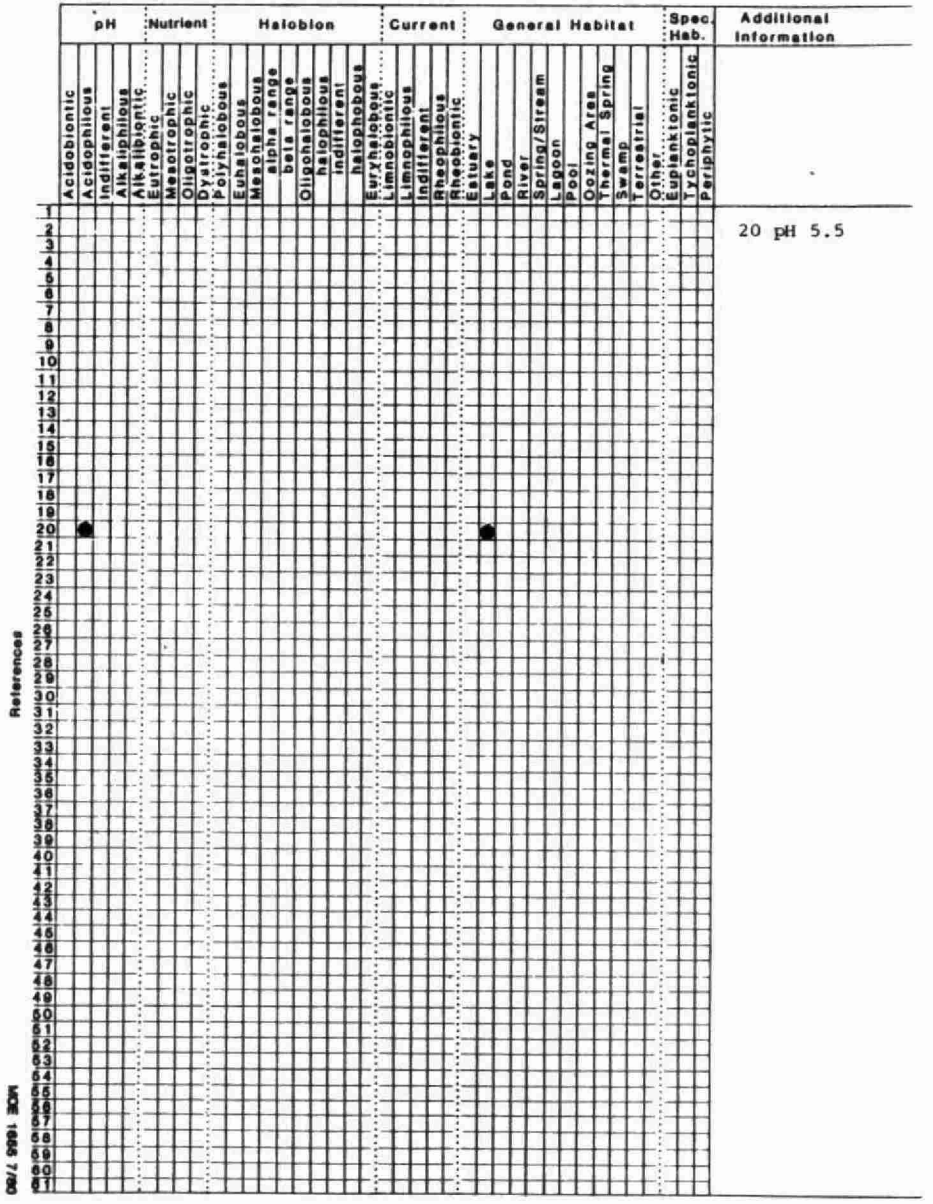
Synonym Pinnularia viridis var. sudetica (Hilse) Herib.



19 pH 6.0 +
20 pH less than 4.0-9.0 +
48 Sphagnum bog

Taxon Pinnularia undulata var. stauroneiformis Hust.

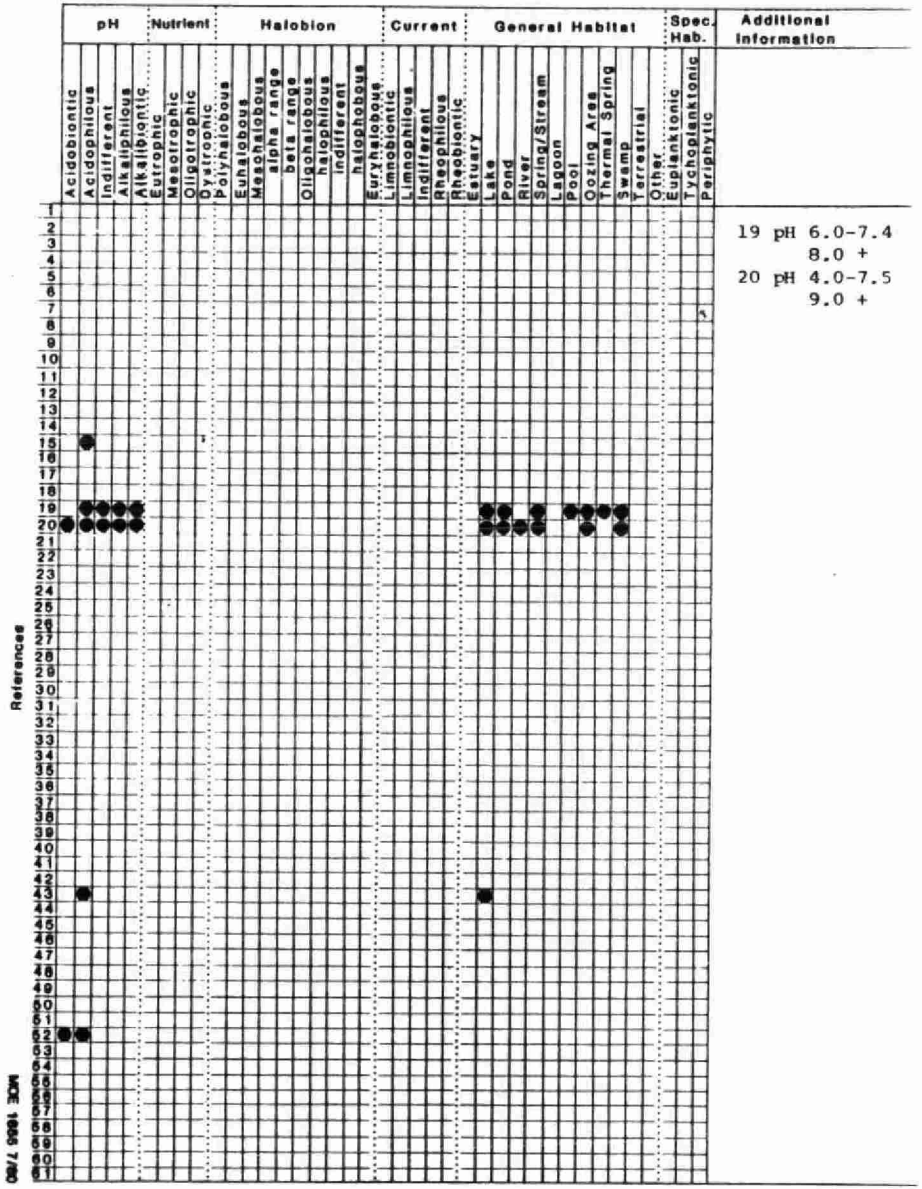
Synonym



20 pH 5.5

Taxon Pinnularia undulata Greg. var. undulata

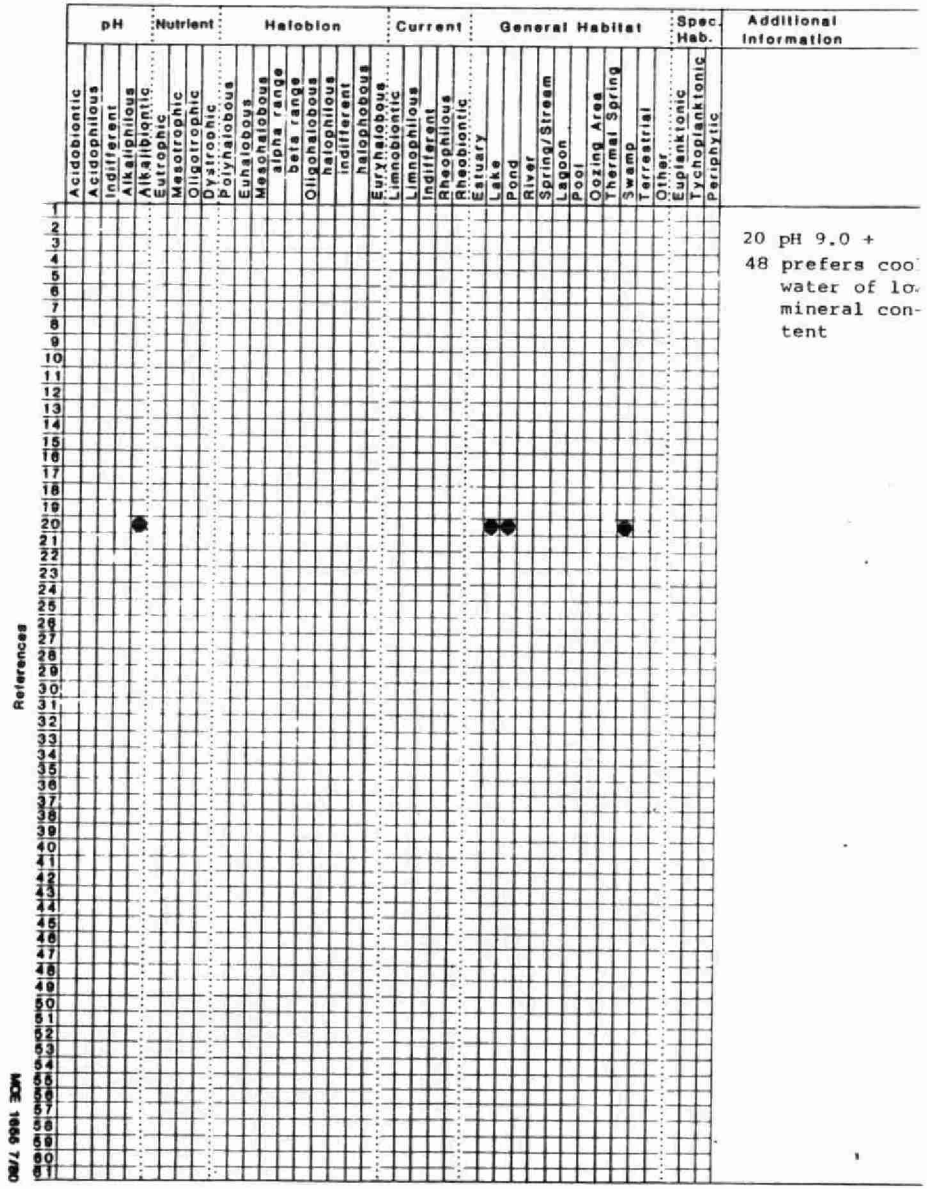
Synonym



19 pH 6.0-7.4
8.0 +
20 pH 4.0-7.5
9.0 +

Taxon Pinnularia viridis var. commutata (grun.) Cl.

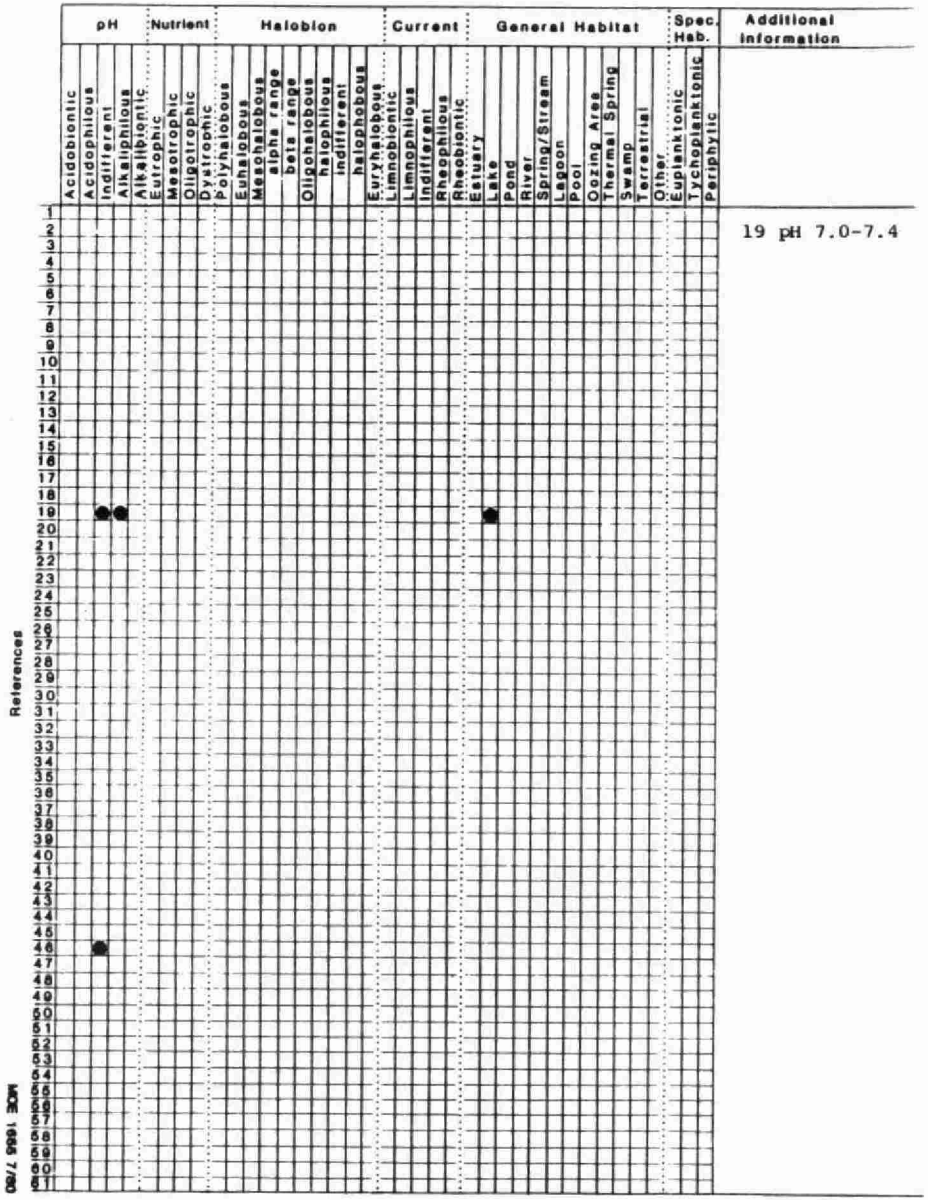
Synonym Pinnularia viridis var. fallax Cl.



20 pH 9.0 +
48 prefers coo
water of lo
mineral con-
tent

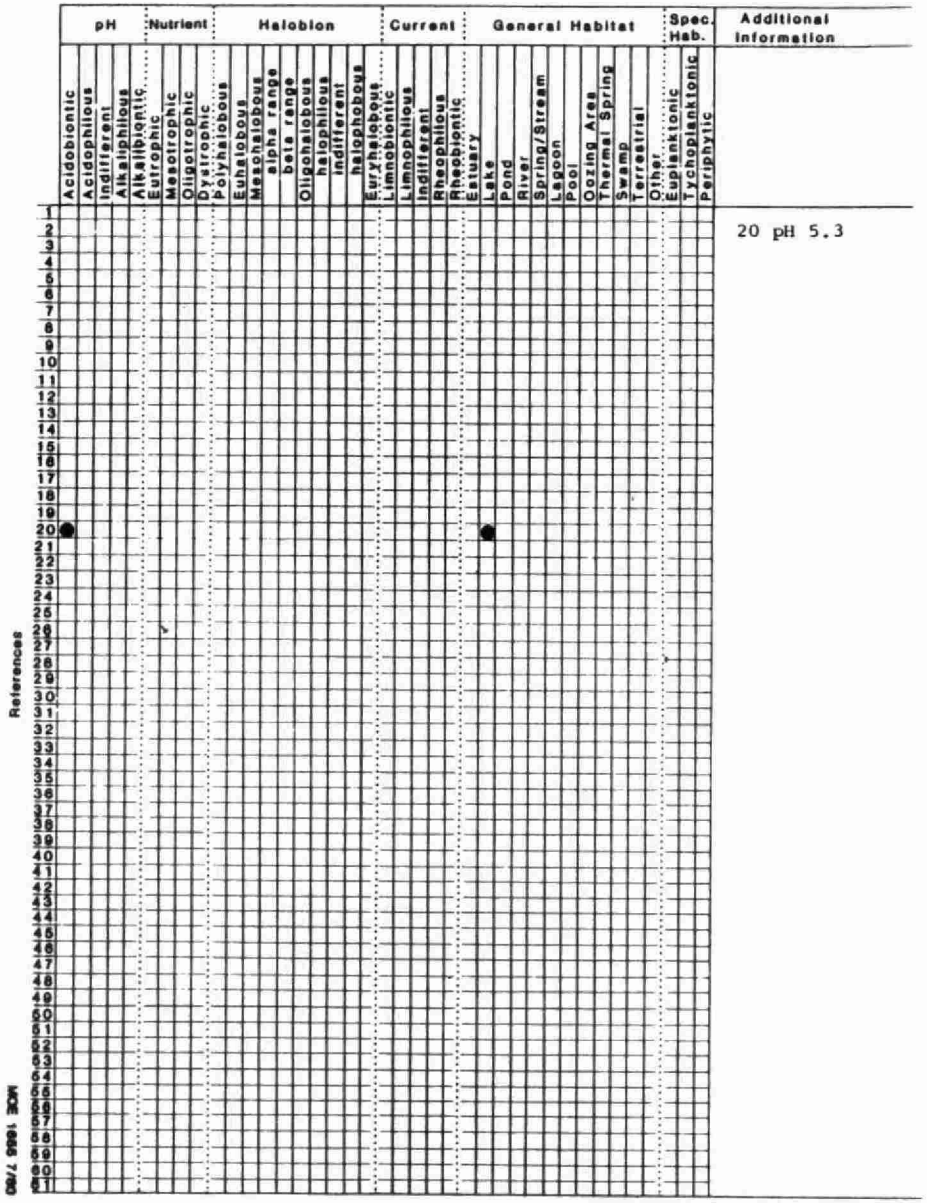
Taxon Pinnularia viridis var. intermedia Cl.

Synonym



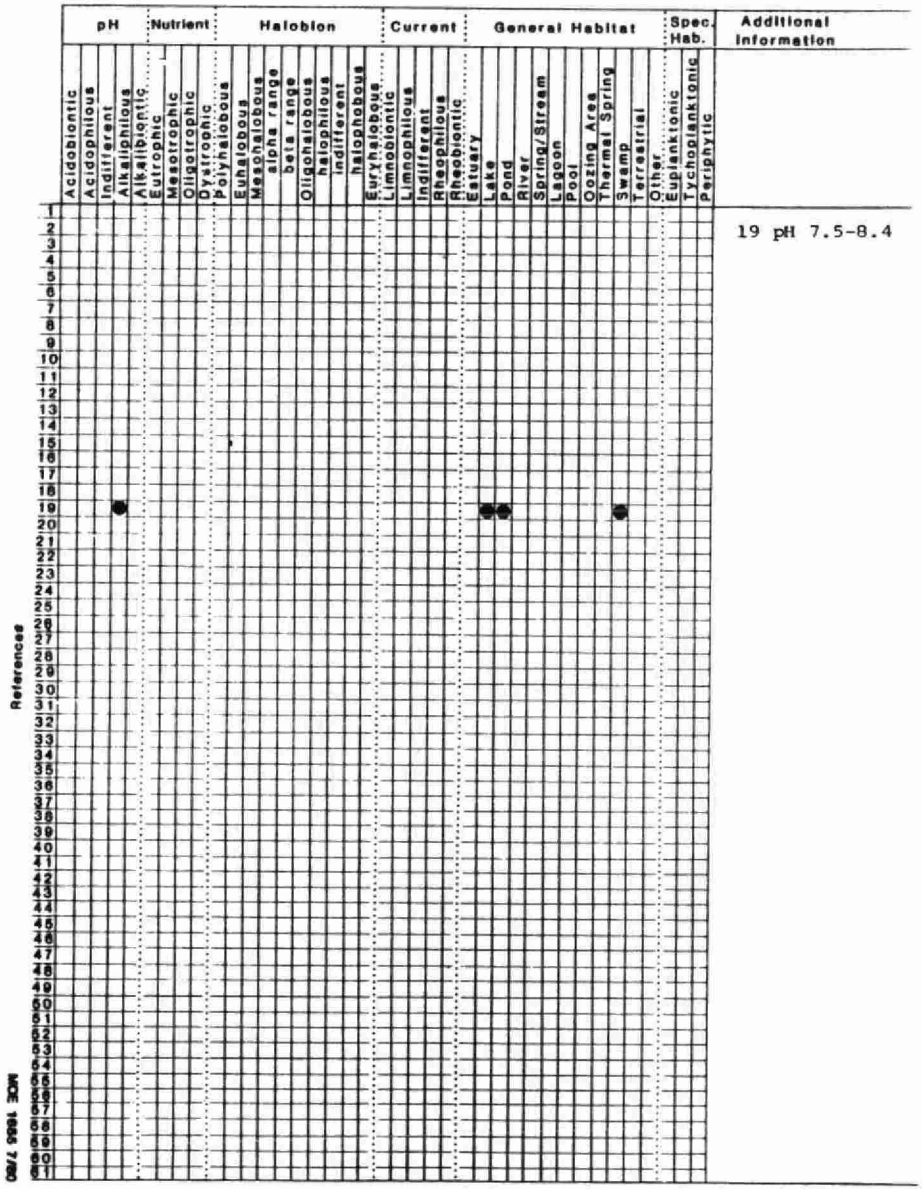
Taxon Pinnularia viridis var. leptogongyla (Ehr.? Grun.) Cl.

Synonym



Taxon Pinnularia viridis var. paludosa Hust.

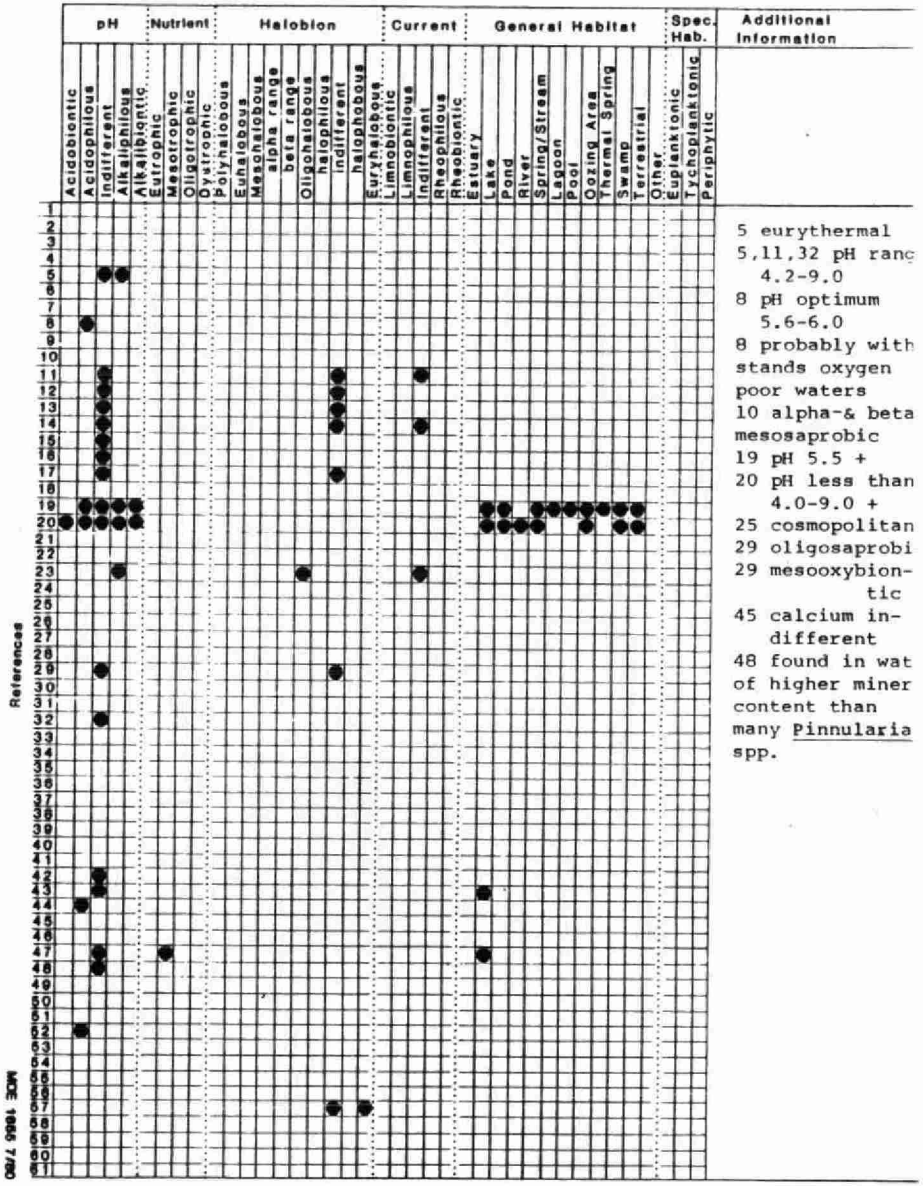
Synonym



19 pH 7.5-8.4

Taxon Pinnularia viridis (Nitz.) Ehr. var. viridis

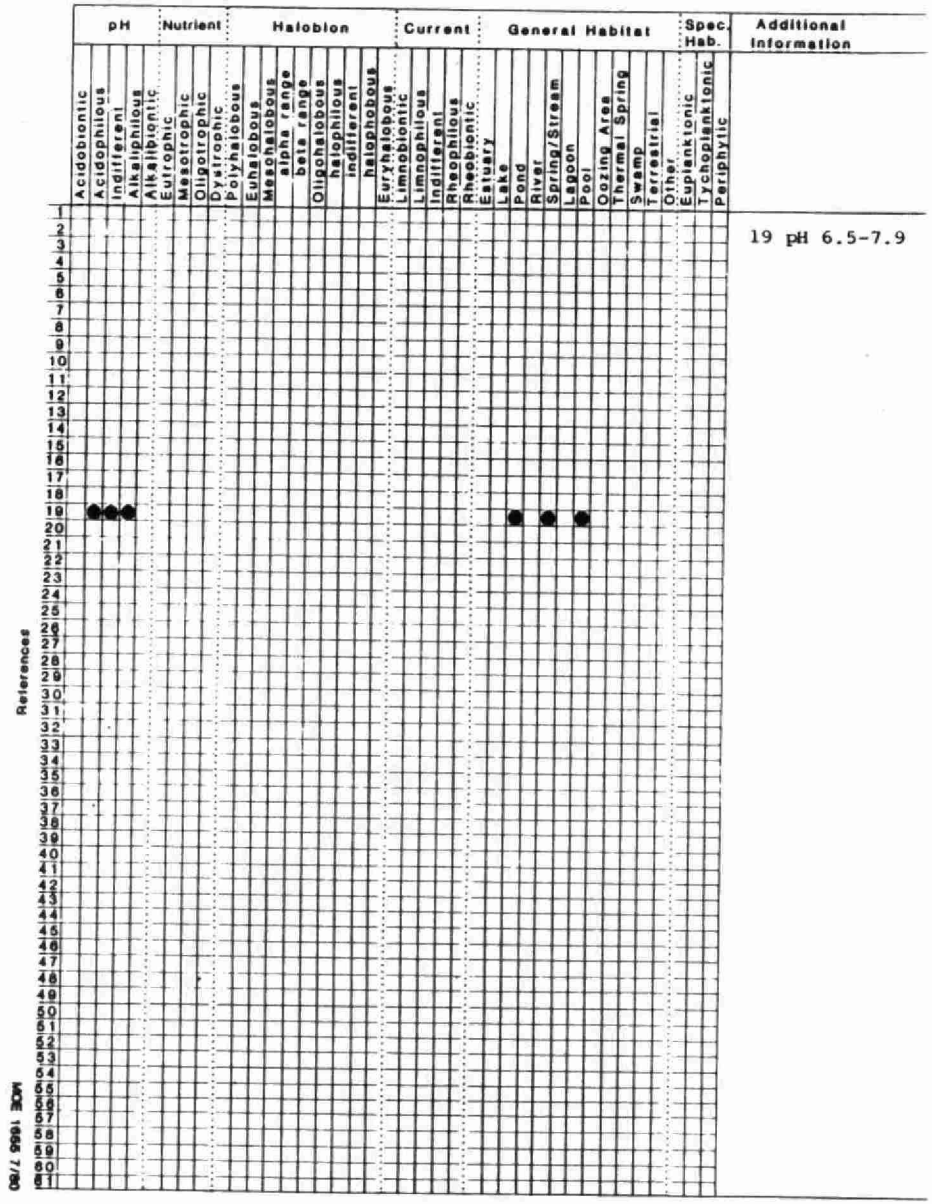
Synonym



5 eurythermal
5,11,32 pH rang
4.2-9.0
8 pH optimum
5.6-6.0
8 probably with
stands oxygen
poor waters
10 alpha-& beta
mesosaprobic
19 pH 5.5 +
20 pH less than
4.0-9.0 +
25 cosmopolitan
29 oligosaprobi
29 mesooxybion-
tic
45 calcium in-
different
48 found in wat
of higher miner
content than
many Pinnularia
spp.

Taxon Pinnularia viridis f. cuneatiformis Cl.

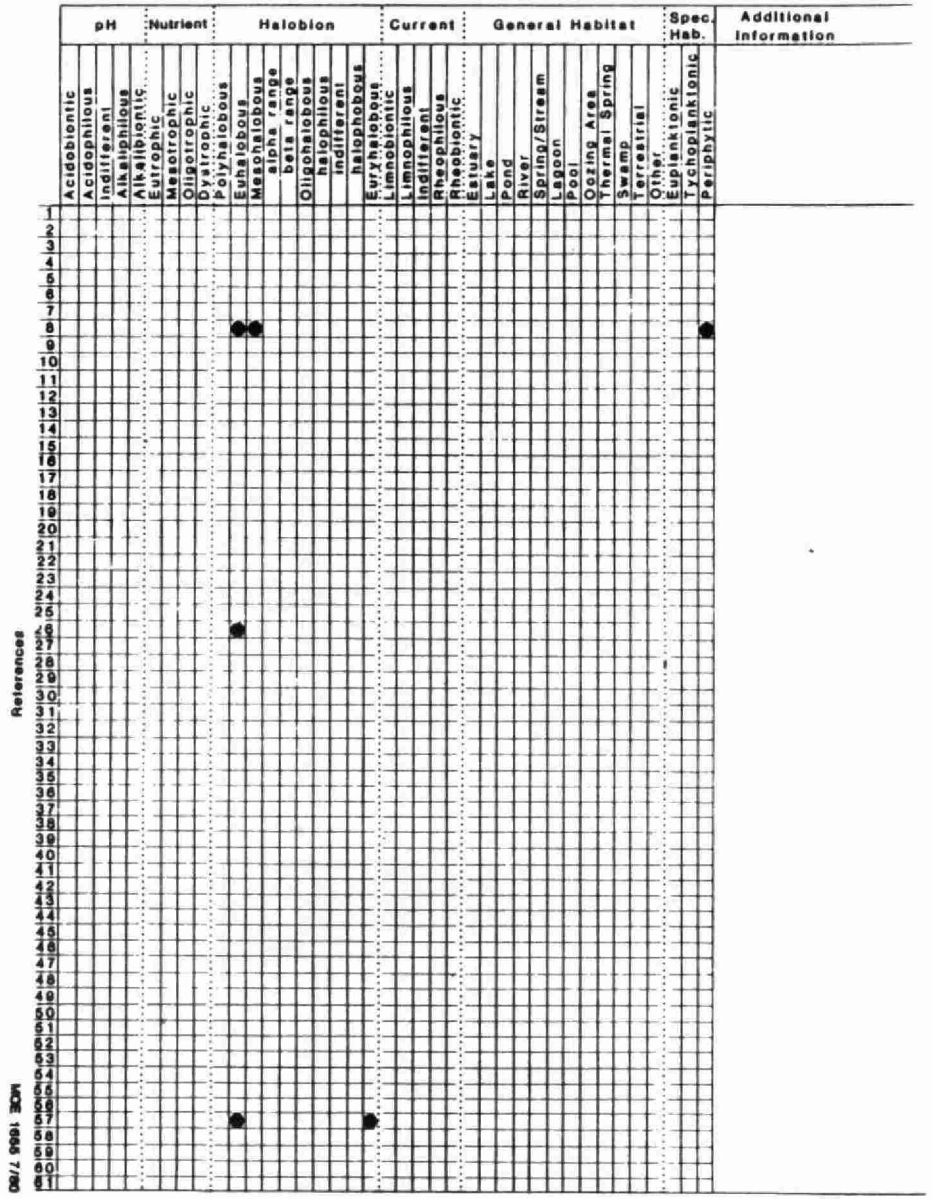
Synonym



19 pH 6.5-7.9

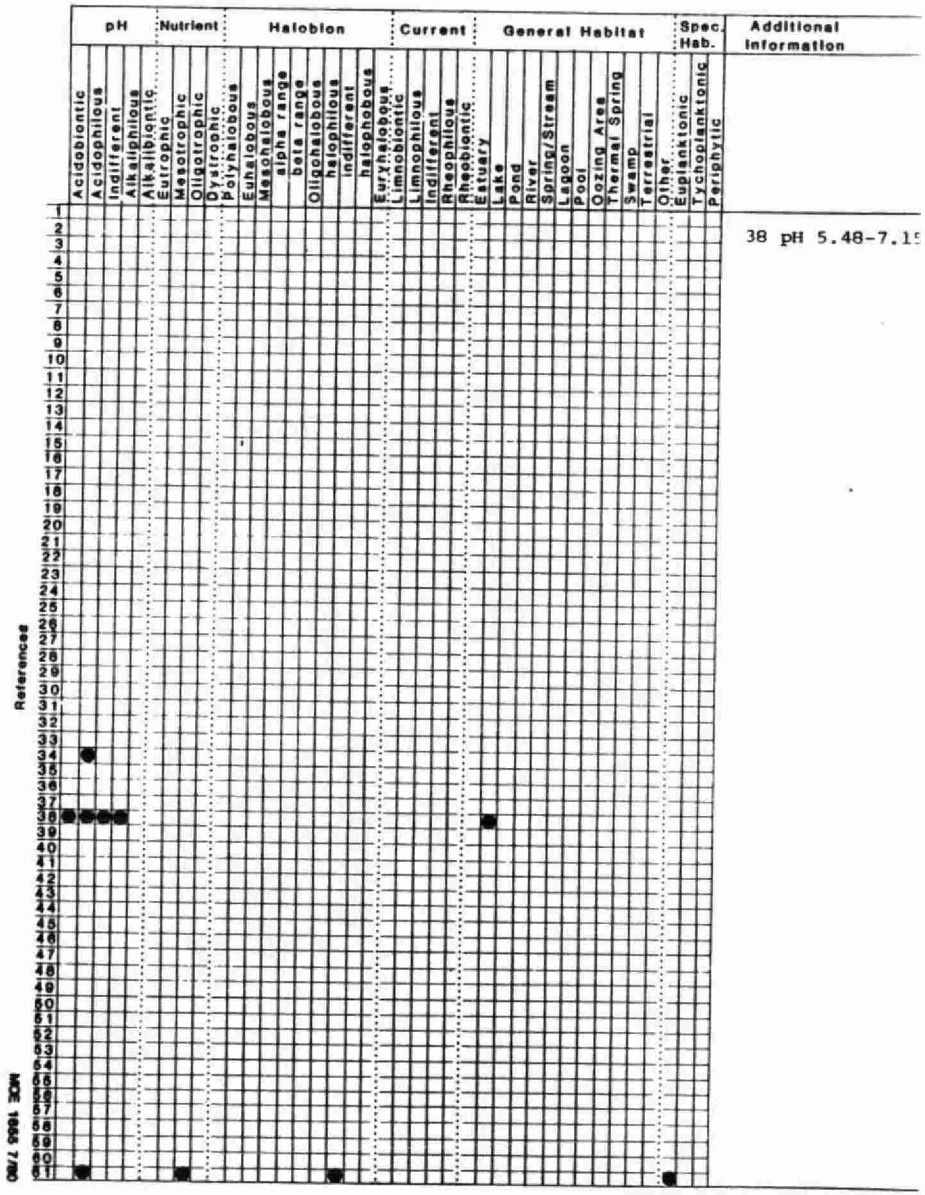
Taxon Plagiotropis lepidoptera (Cl.) Reim.

Synonym Tropidoneis lepidoptera var. lepidoptera (Greg.) Cl.



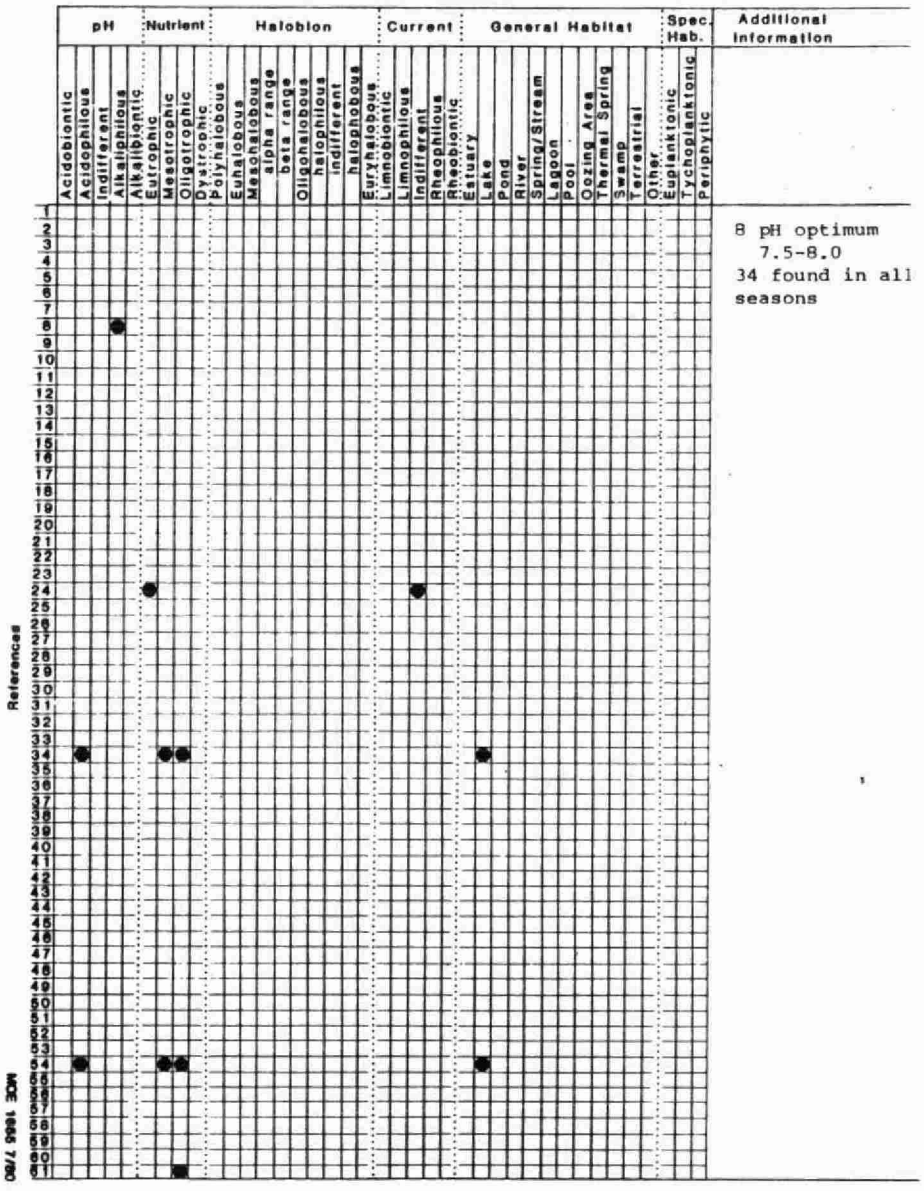
Taxon Rhizosolenia sp.

Synonym



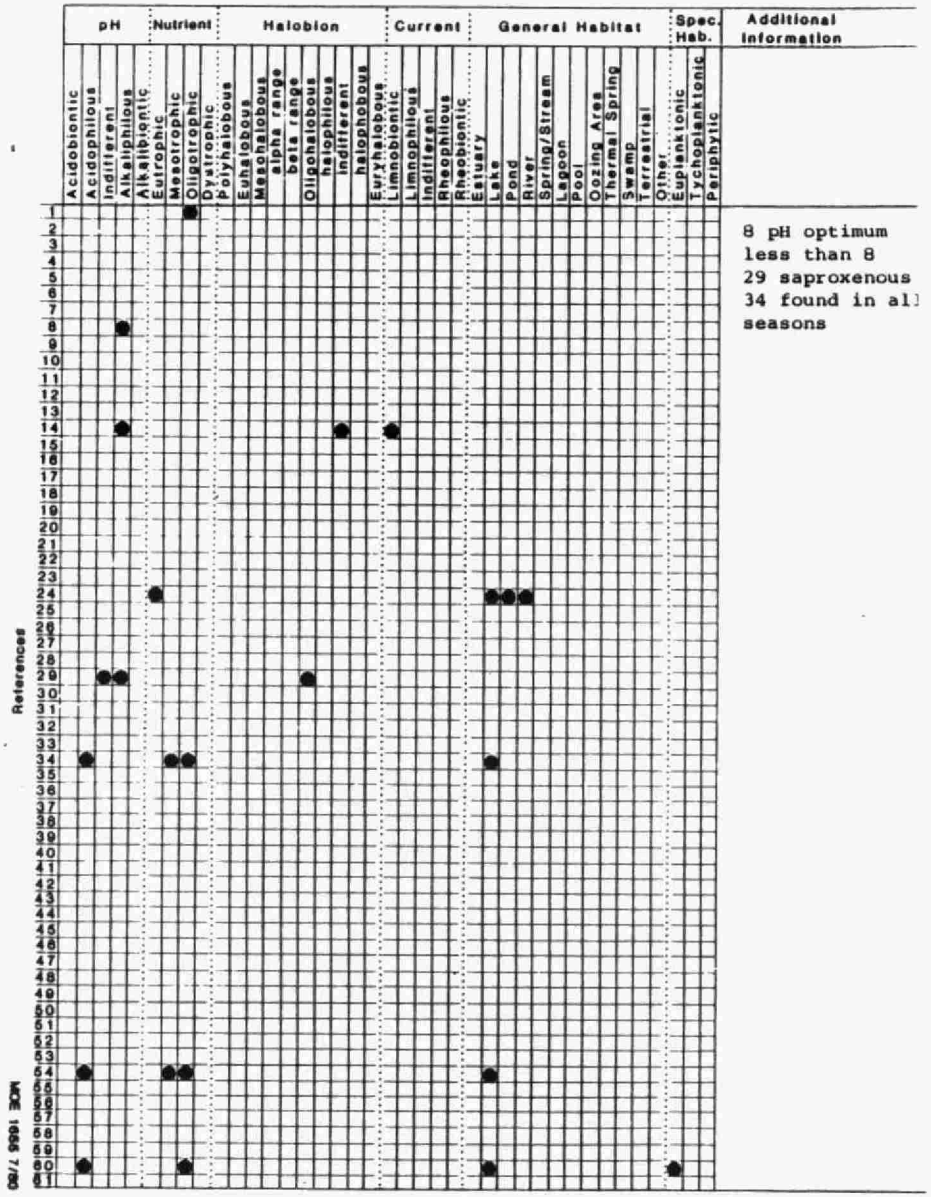
Taxon Rhizosolenia eriensis H.L. Smith

Synonym



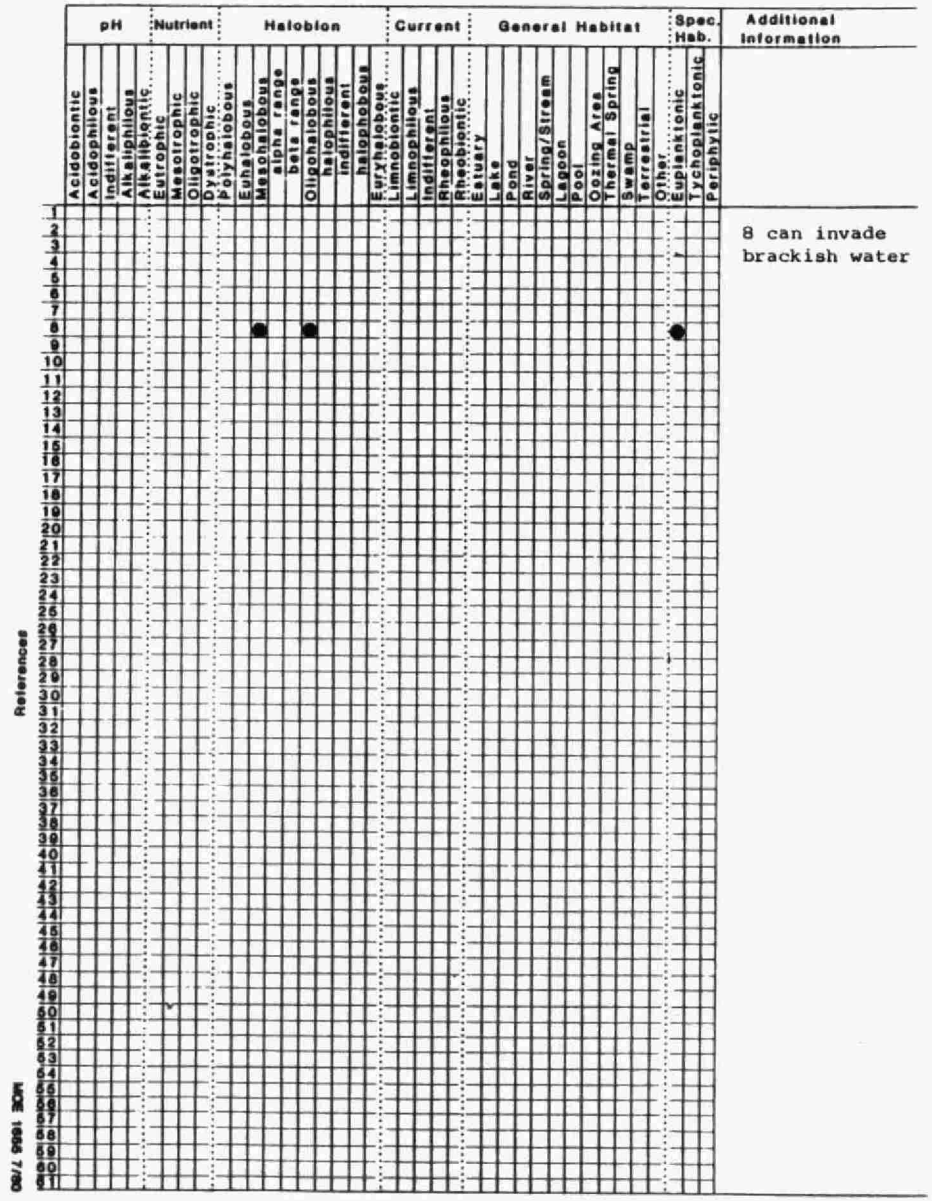
Taxon Rhizosolenia longiseta Zach.

Synonym



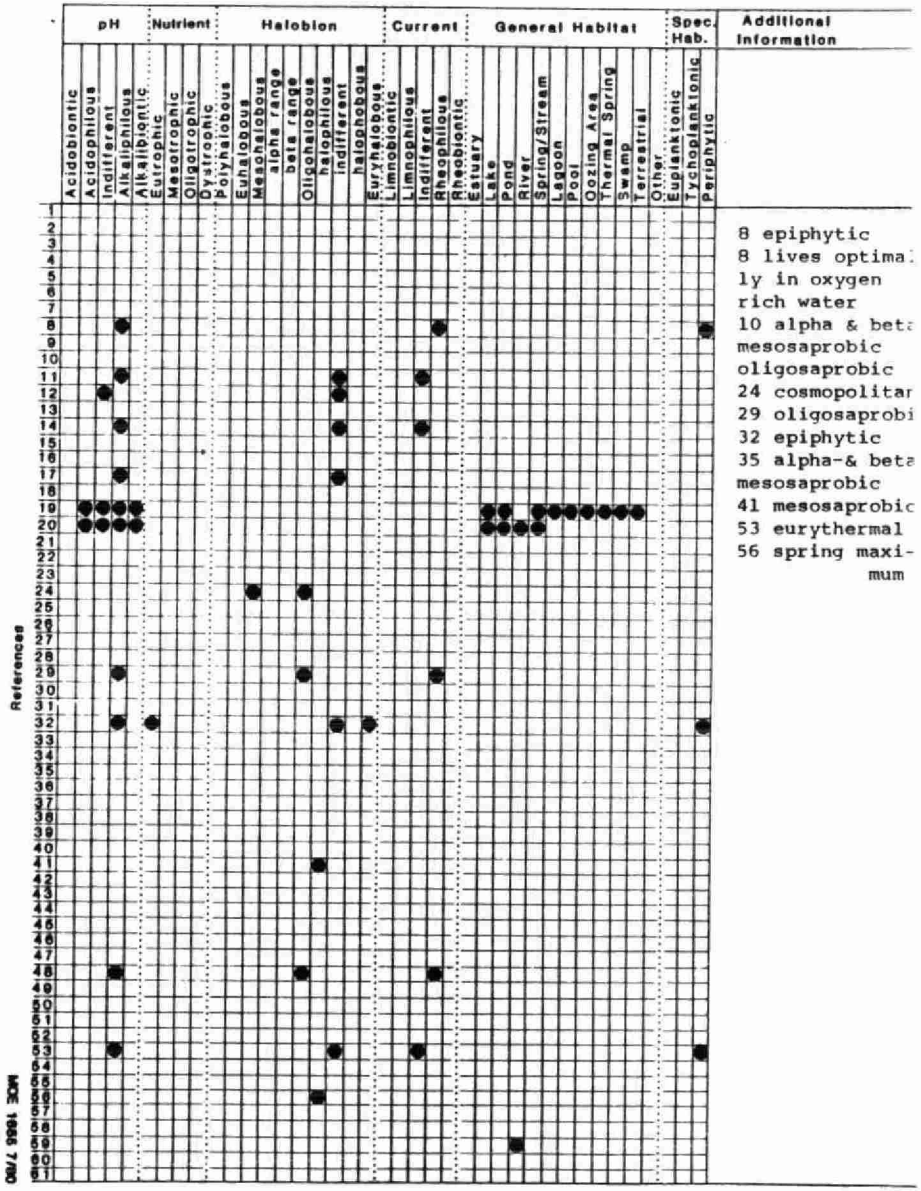
Taxon Rhizosolenia minima Lev.

Synonym



Taxon Rhoicosphenia curvata (Kutz.) Grun.ex Rabh.

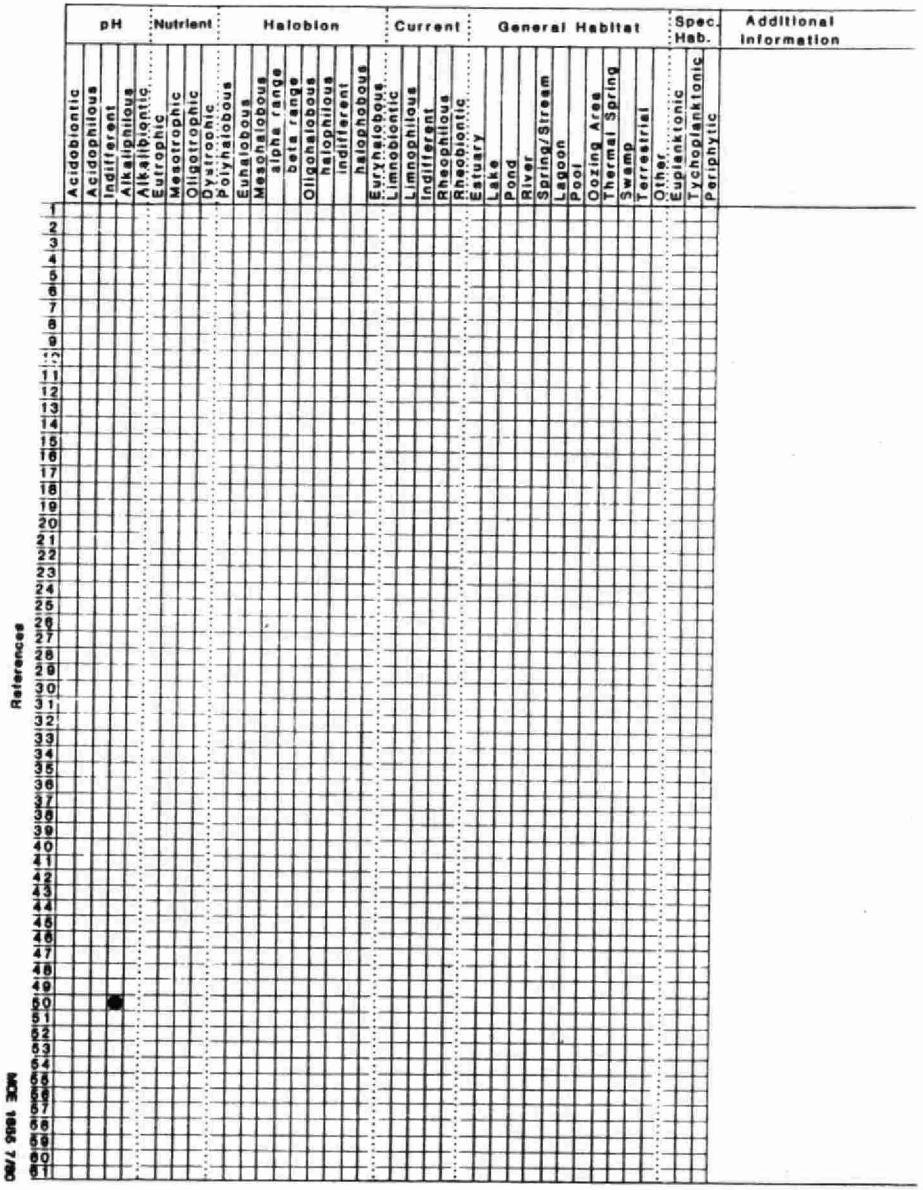
Synonym



8 epiphytic
8 lives optima
ly in oxygen
rich water
10 alpha & beta
mesosaprobic
oligosaprobic
24 cosmopolitan
29 oligosaprobi
32 epiphytic
35 alpha-& beta
mesosaprobic
41 mesosaprobic
53 eurythermal
56 spring maxi-
mum

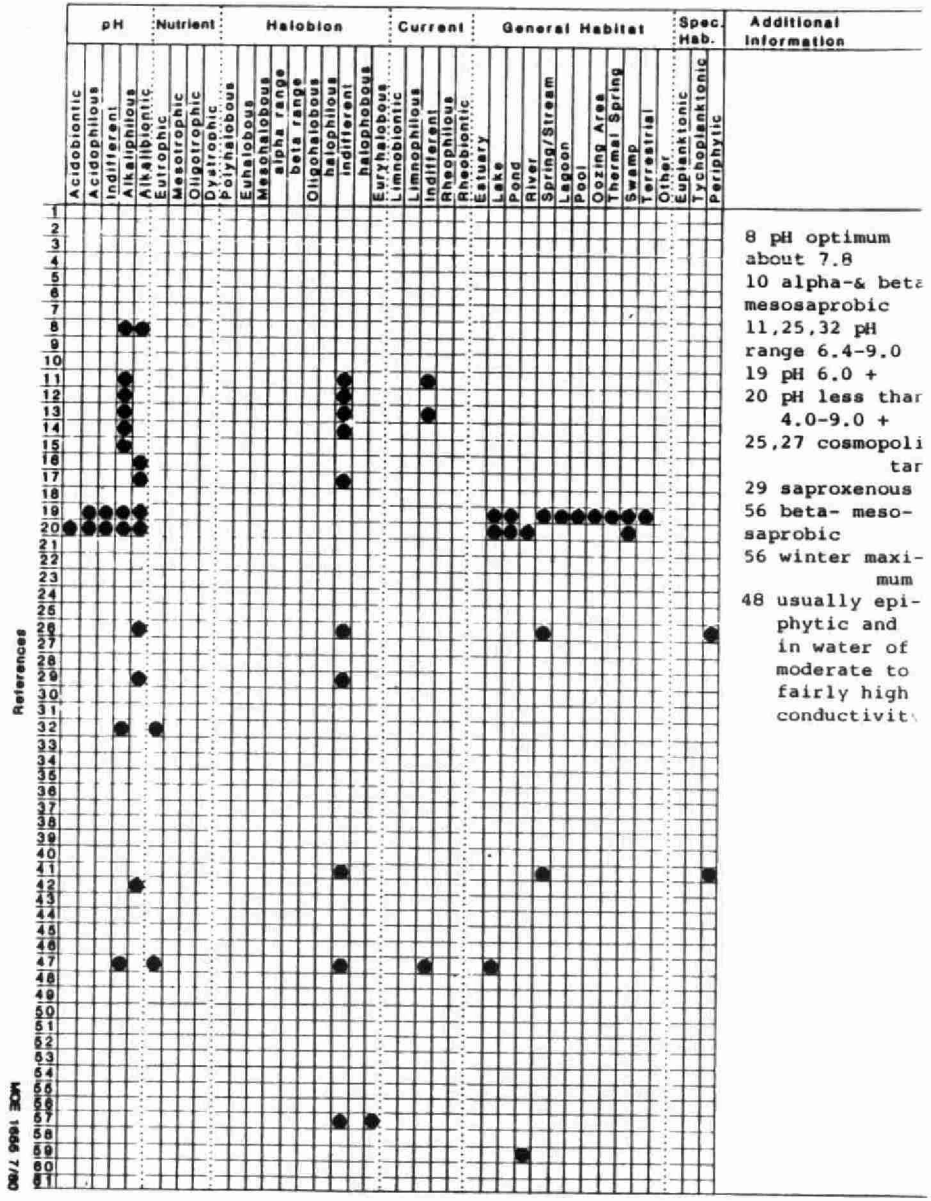
Taxon Rhopalodia sp.

Synonym



Taxon Rhopalodia gibba (Ehr.) O. Müll. var. gibba

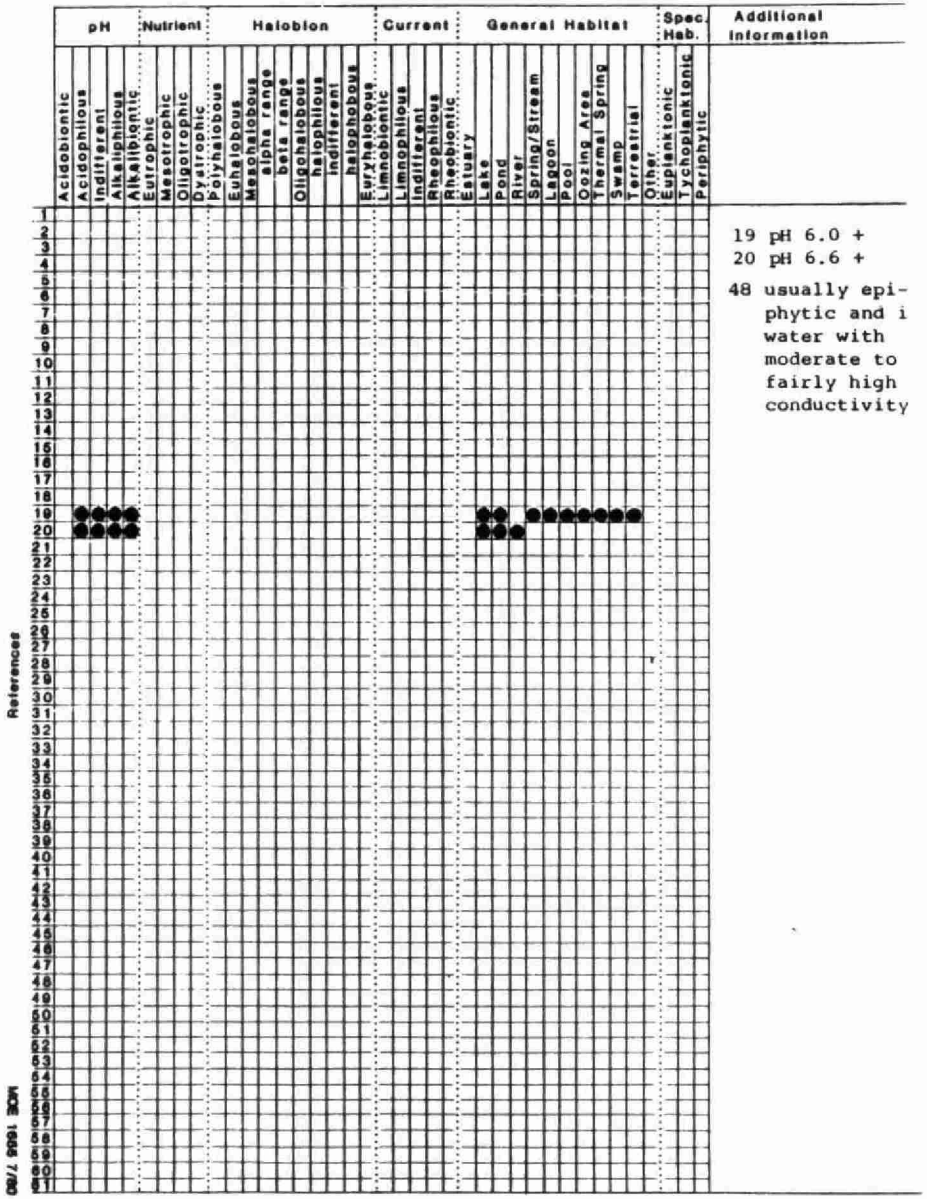
Synonym



8 pH optimum about 7.8
10 alpha-& beta mesosaprobic
11,25,32 pH range 6.4-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
25,27 cosmopolitar
29 saproxenous
56 beta- meso-saprobic
56 winter maximum
48 usually epiphytic and in water of moderate to fairly high conductivity

Taxon Rhopalodia gibba var. ventricosa (Ehr.) Grun.

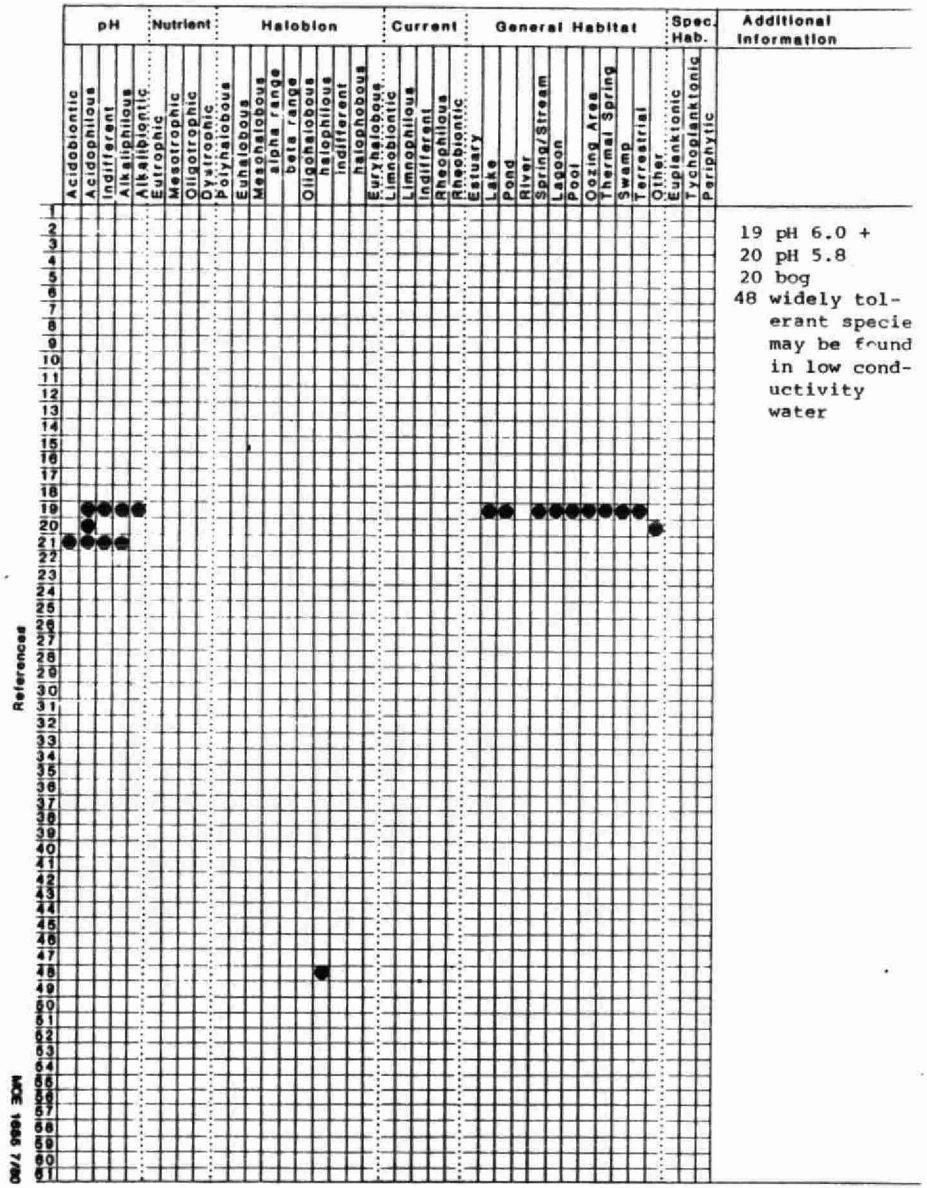
Synonym



19 pH 6.0 +
20 pH 6.6 +
48 usually epiphytic and i water with moderate to fairly high conductivity

Taxon Rhopalodia gibberula (Ehr.) O.Mull. var. gibberula

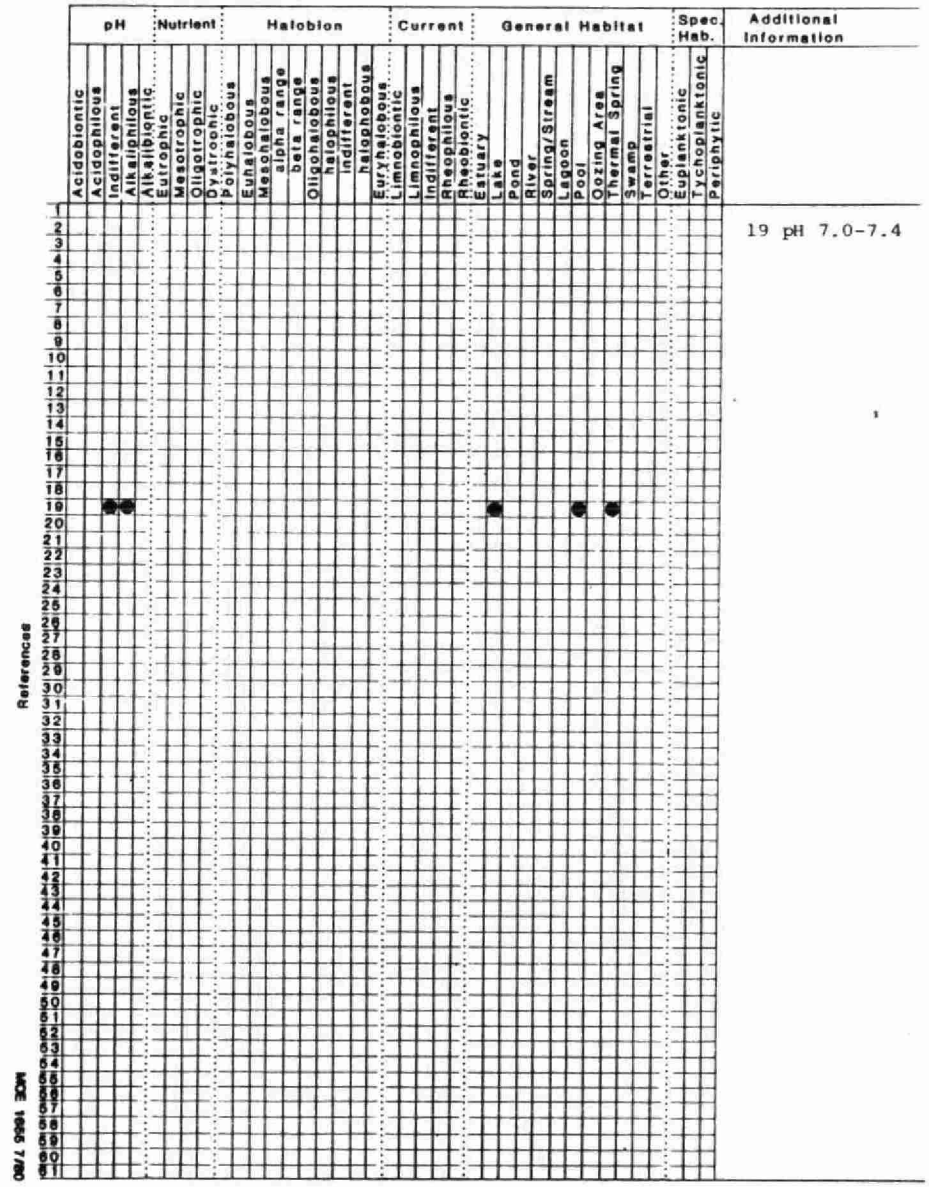
Synonym



19 pH 6.0 +
20 pH 5.8
20 bog
48 widely tolerant specie may be found in low conductivity water

Taxon Rhopalodia gibberula var. protracta Grun.

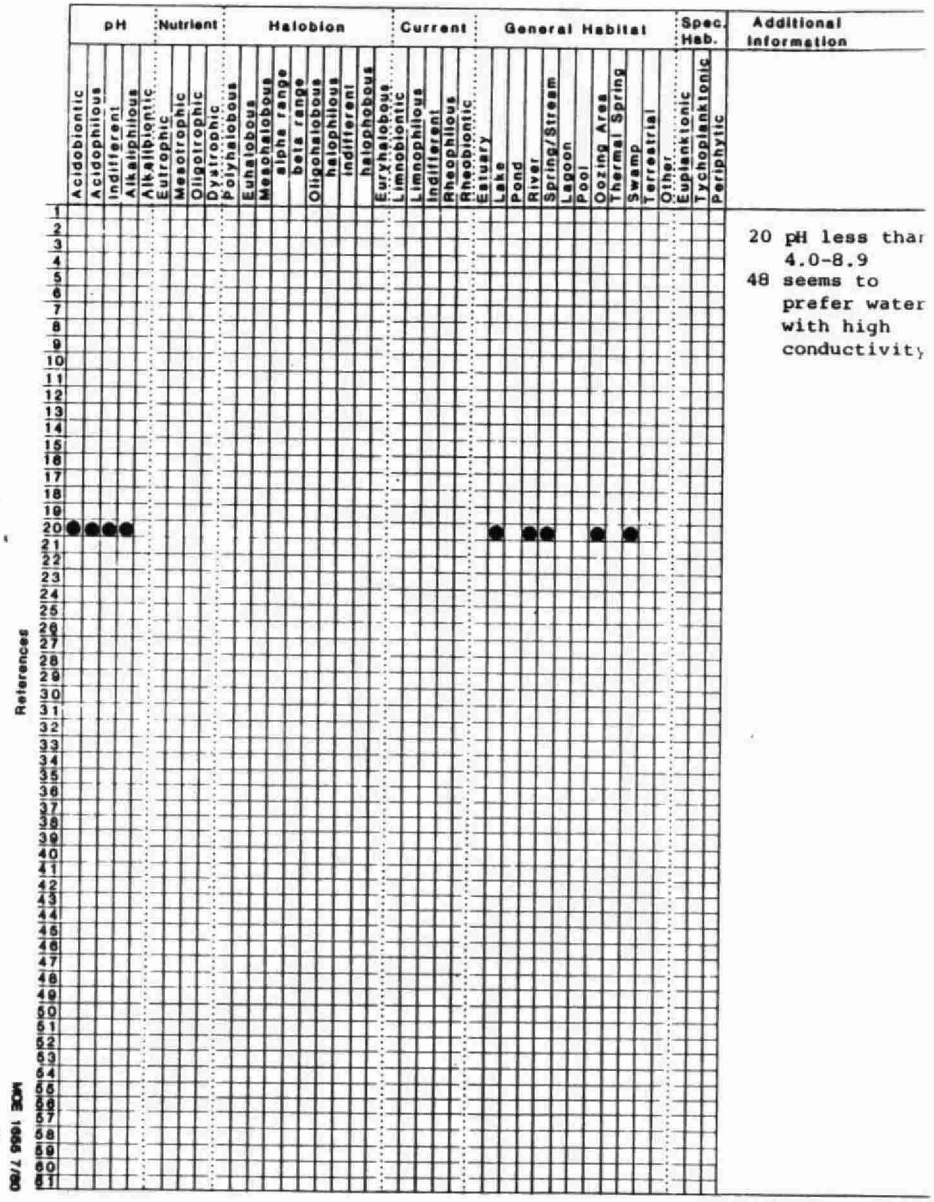
Synonym



19 pH 7.0-7.4

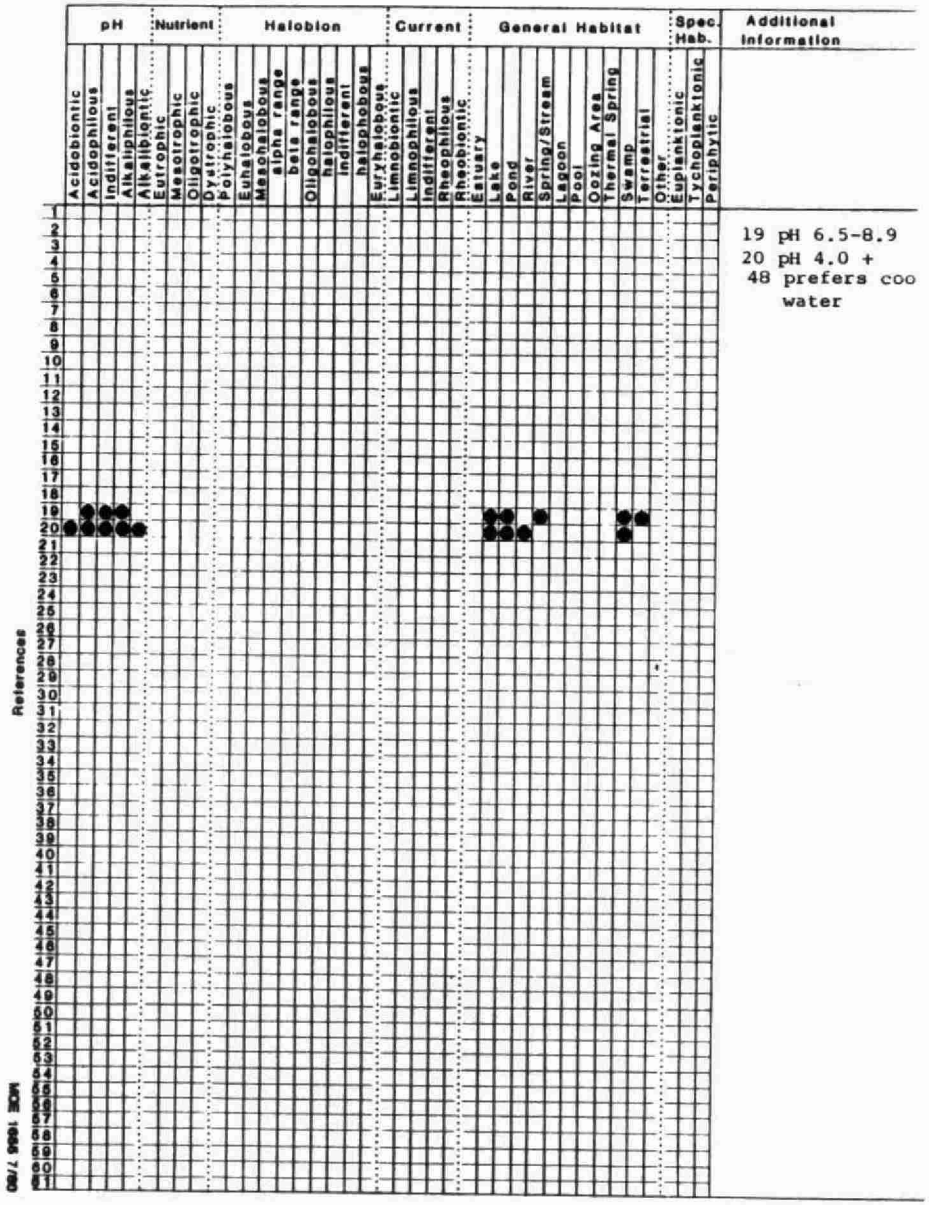
Taxon Rhopalodia musculus (Kutz.) O.Mull.

Synonym



Taxon Rhopalodia parallela (Grun.) O.Mull.

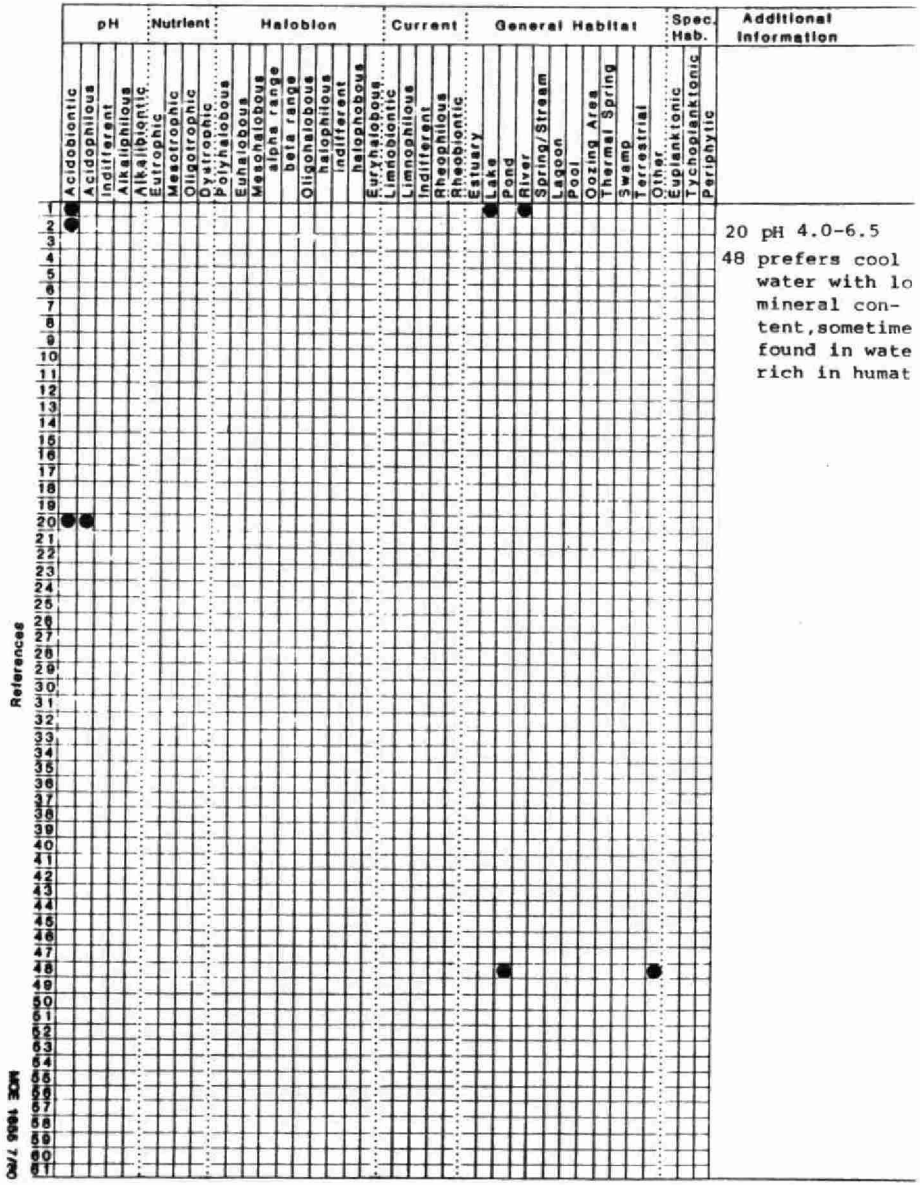
Synonym



Ministry of the Environment
Ontario

Taxon Semiorbis hemicyclus (Ehr.) Patr.

Synonym Amphicampa hemicyclus (Ehr.) Karst.

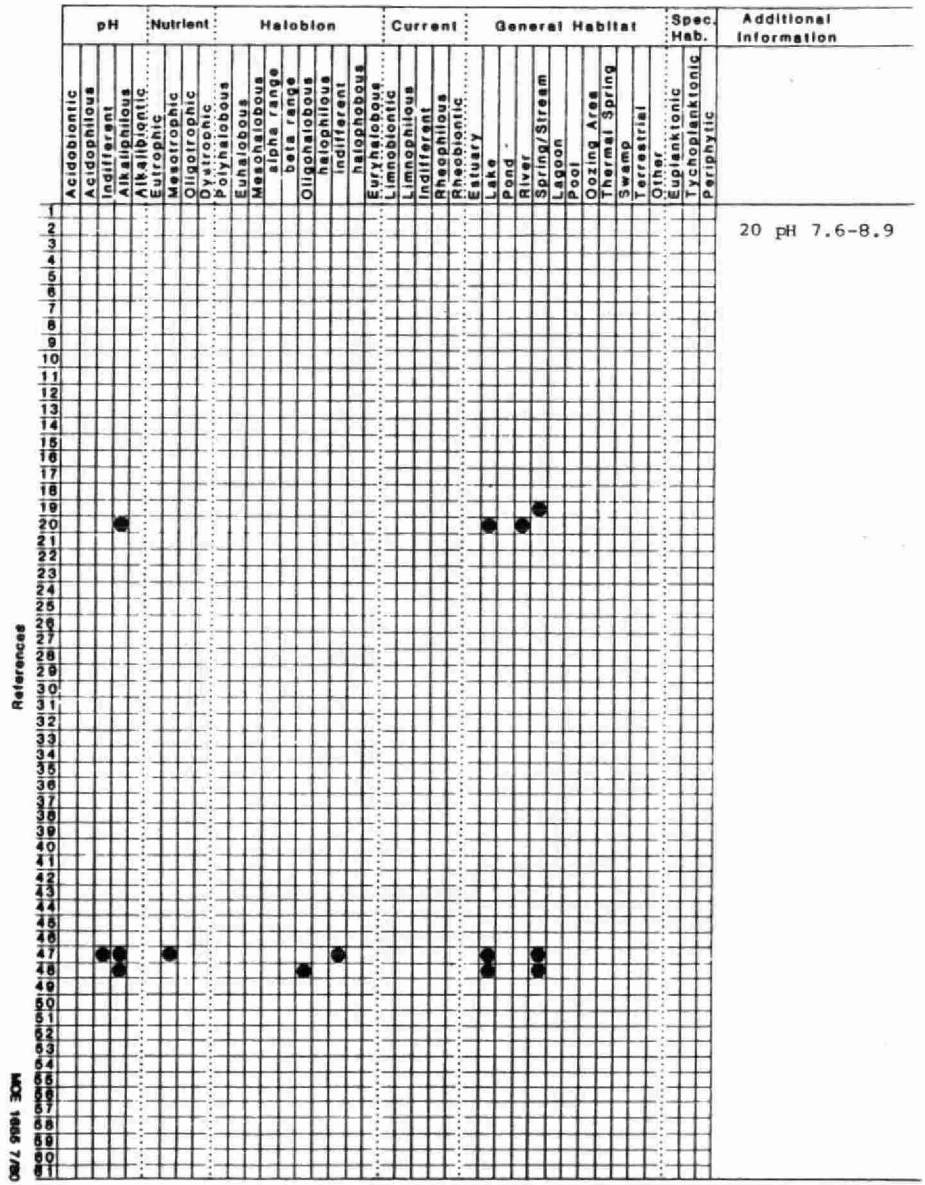


20 pH 4.0-6.5

48 prefers cool water with lo mineral con- tent,sometime found in wate rich in humat

Taxon Stauroneis acuta W. Sm.

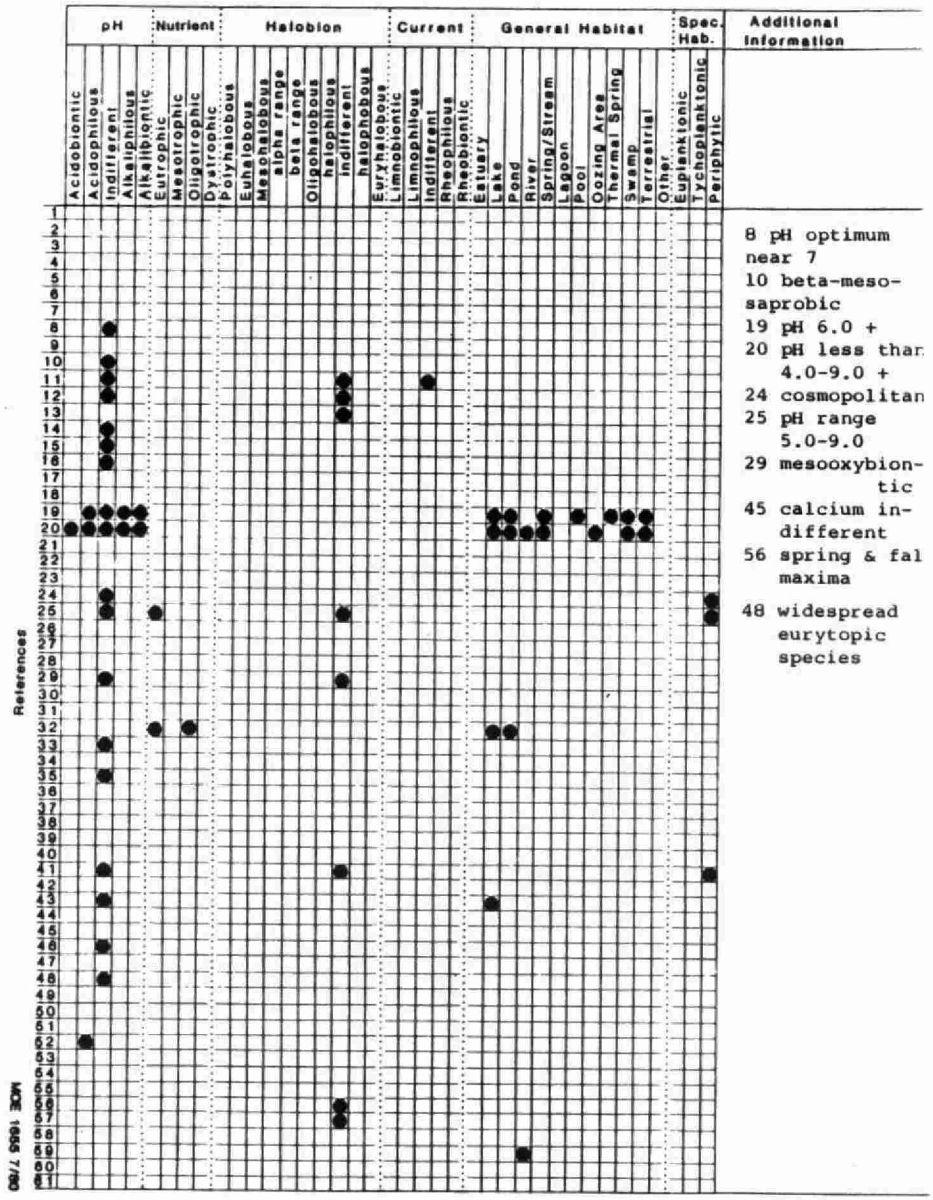
Synonym



20 pH 7.6-8.9

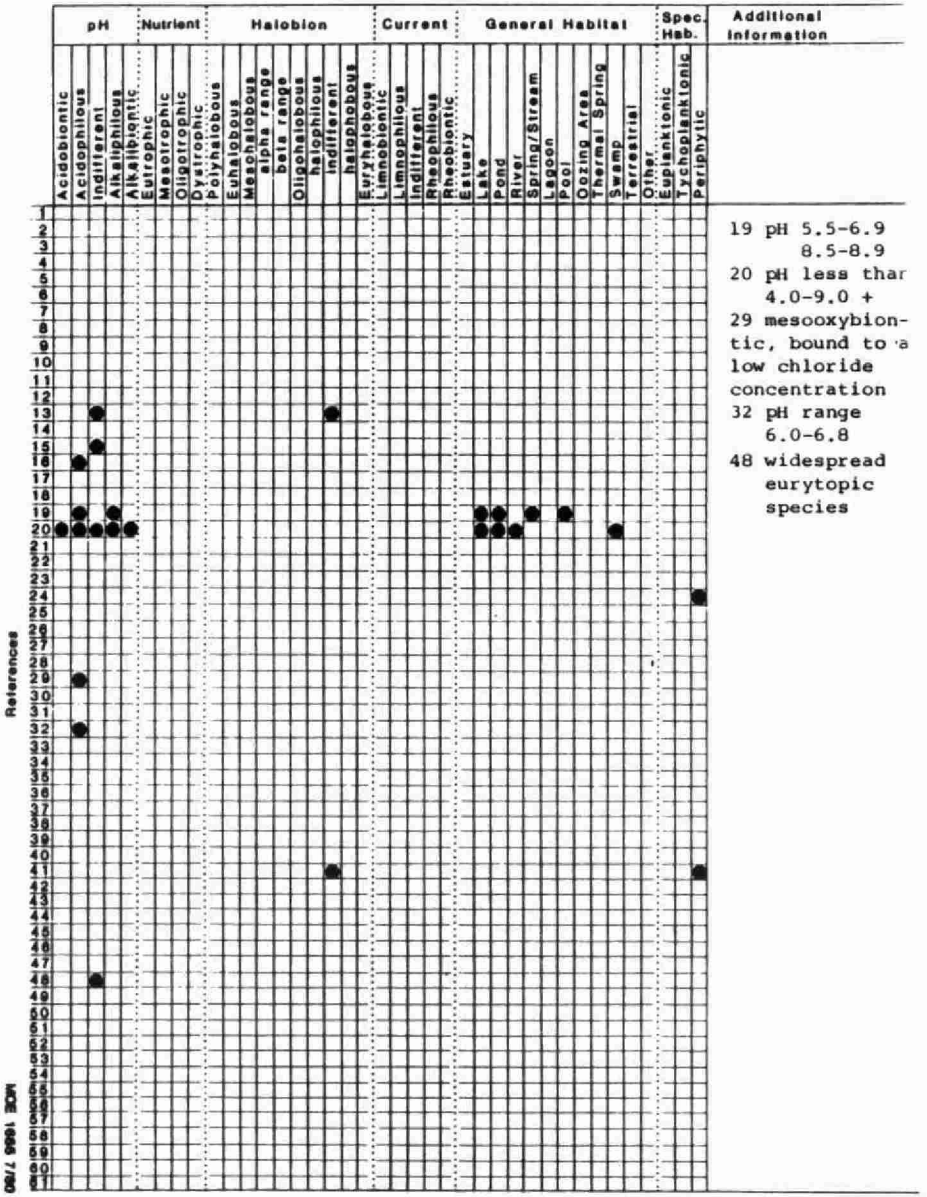
Taxon Stauroneis anceps Ehr. var. anceps

Synonym Stauroneis anceps var. amphicephala (Kutz.) V.H.



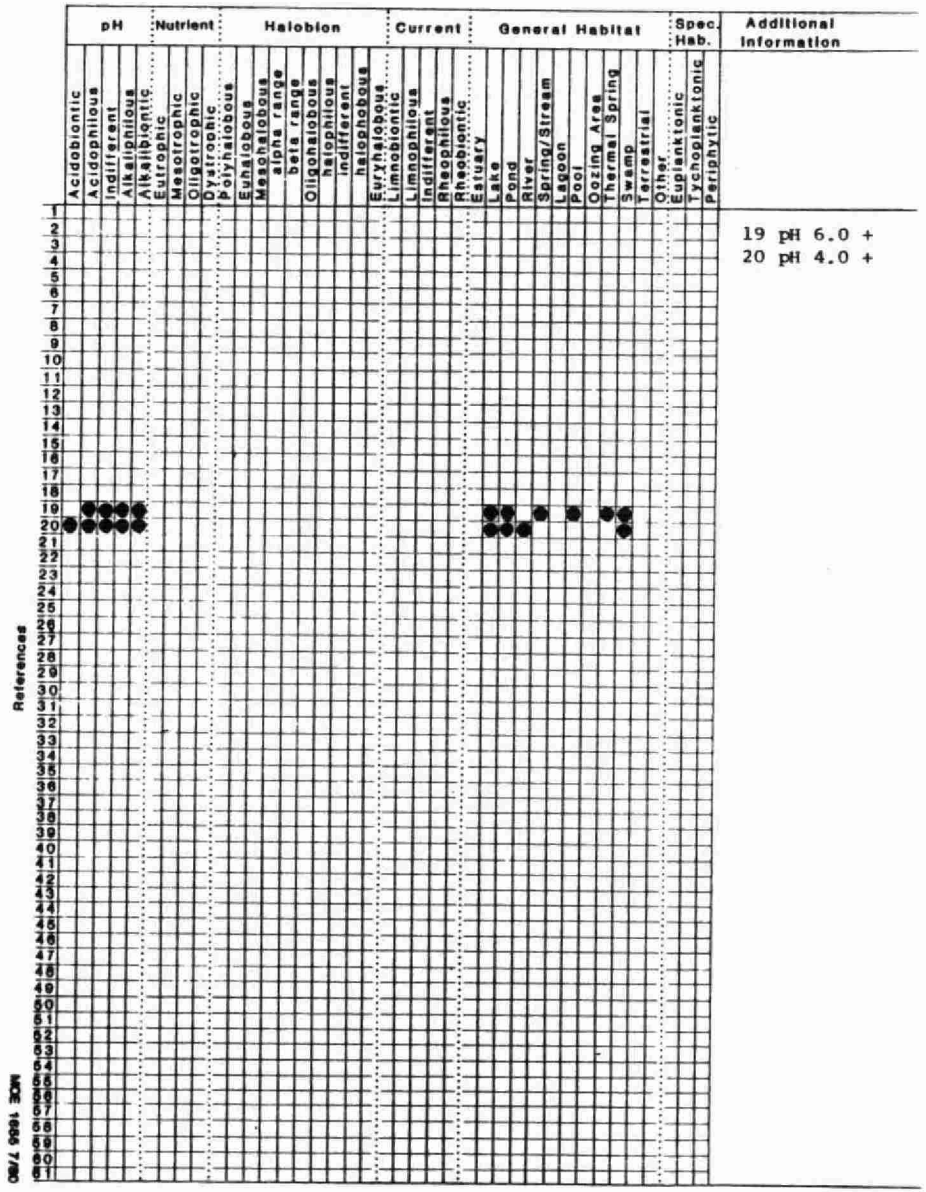
Taxon Stauroneis anceps f. gracilis Rabh.

Synonym



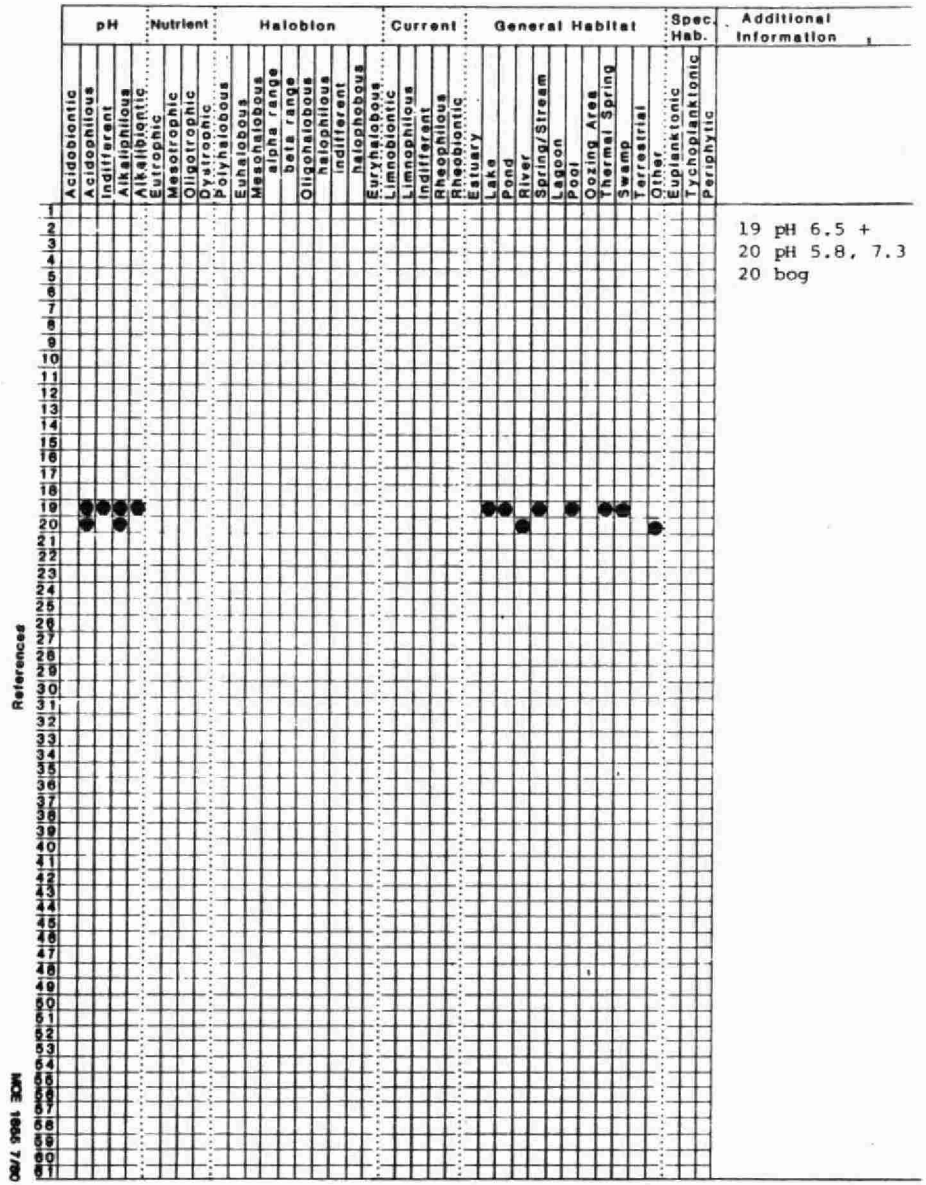
Taxon Stauroneis anceps var. hyalina Brun.& M. Perag.

Synonym



Taxon Stauroneis anceps var. sibirica Grun.

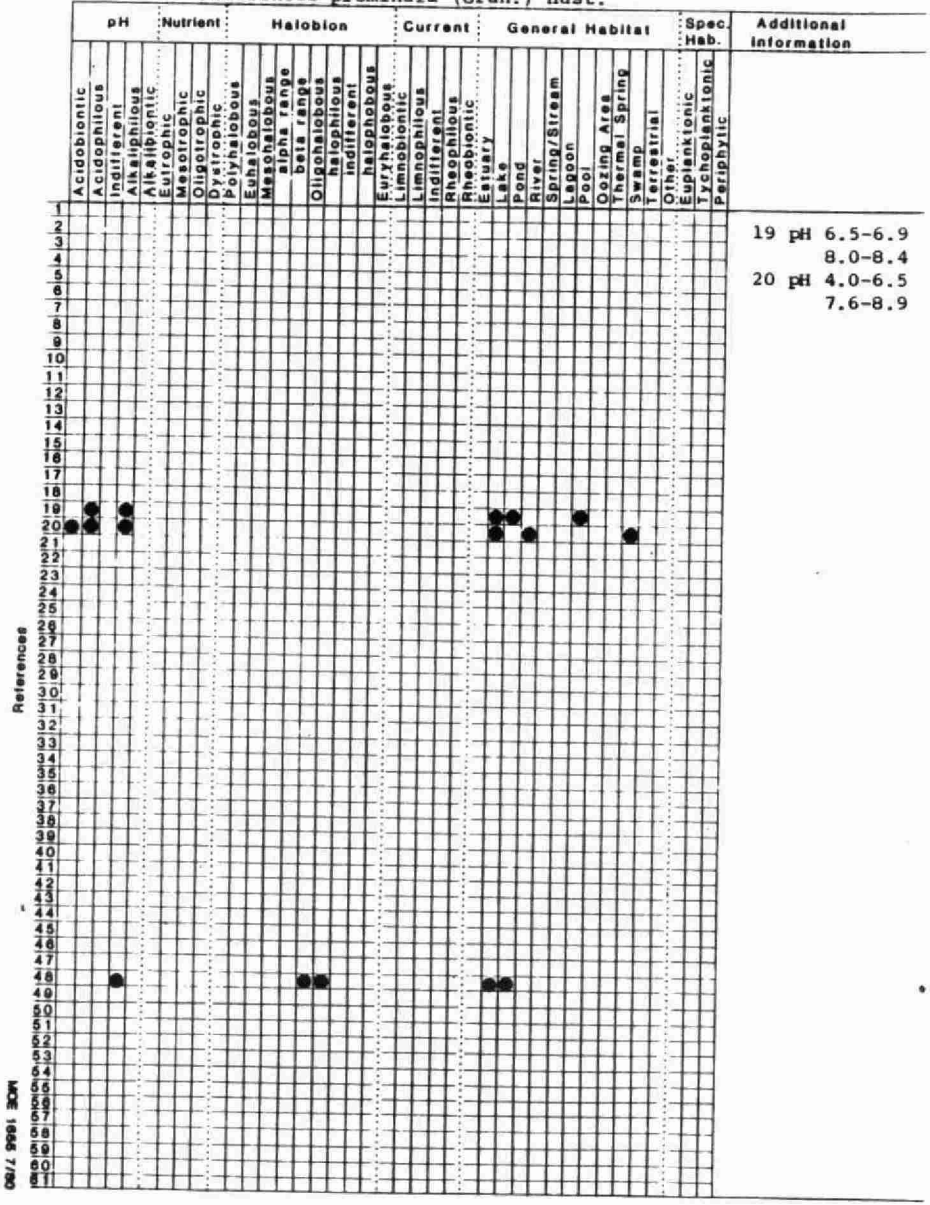
Synonym



Taxon Stauroneis ignorata Hust.

Synonym Stauroneis parvula var. prominula Grun.

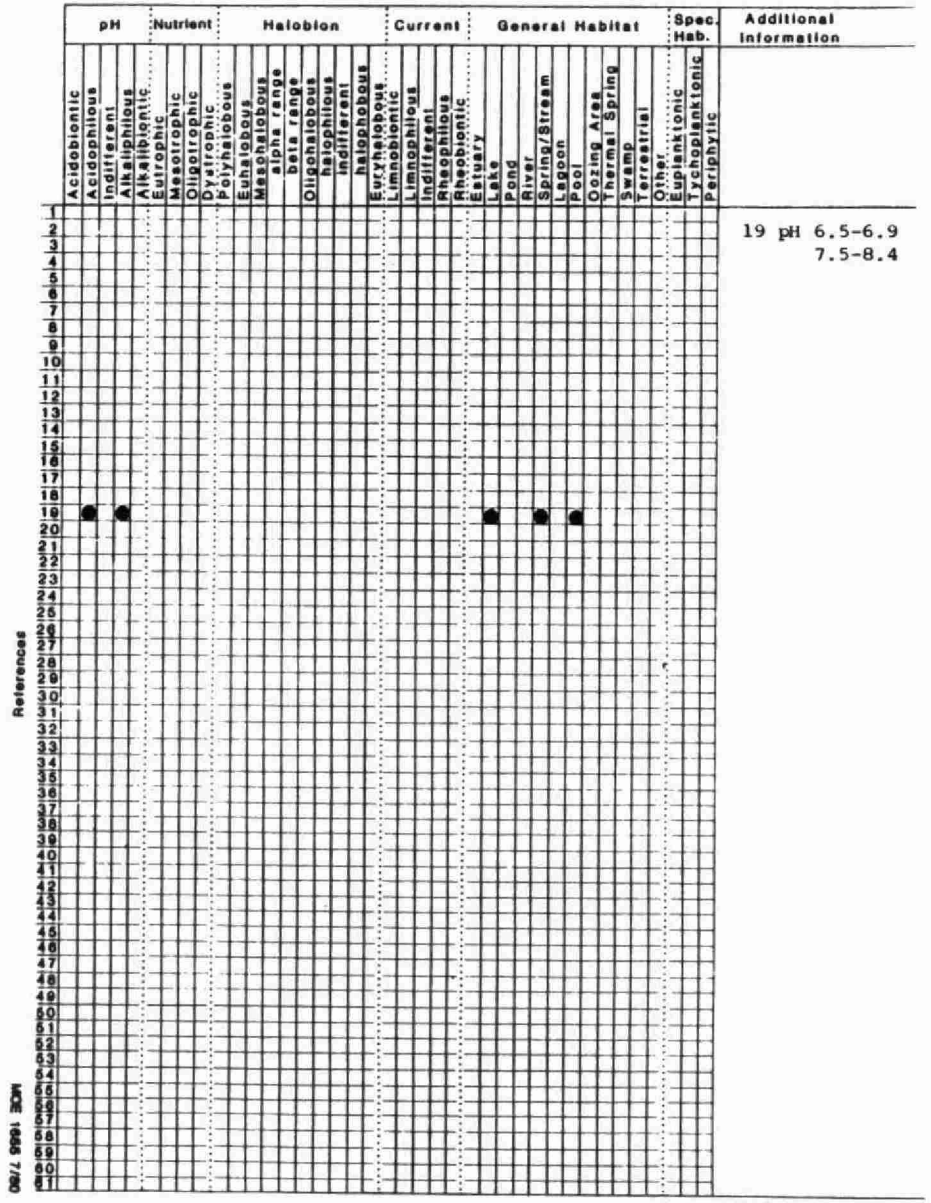
Stauroneis prominula (Grun.) Hust.



19 pH 6.5-6.9
8.0-8.4
20 pH 4.0-6.5
7.6-8.9

Taxon Stauroneis javanica (Grun.) Cl.

Synonym

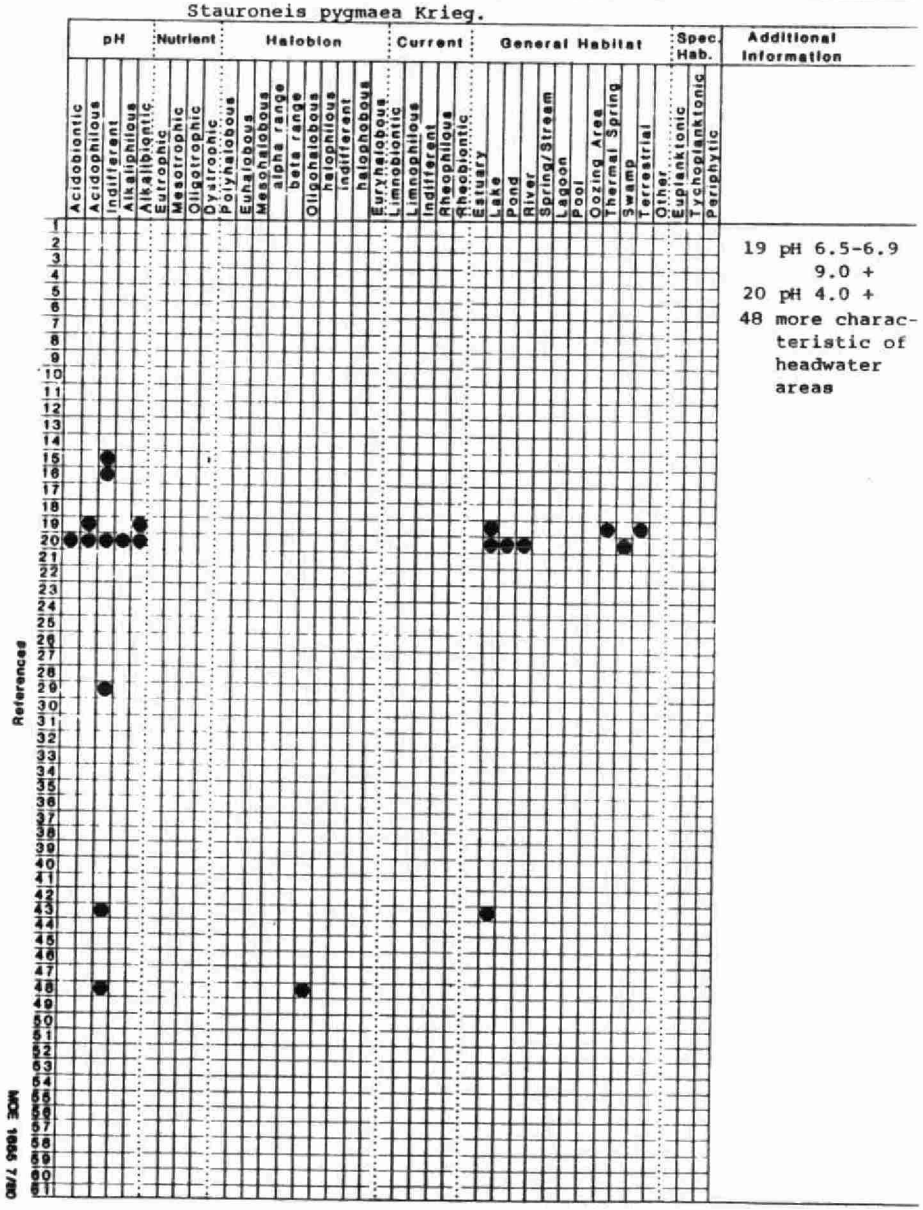


19 pH 6.5-6.9
7.5-8.4

Taxon Stauroneis kriegeri Patr.

Synonym Stauroneis anceps var. capitata M. Perag.

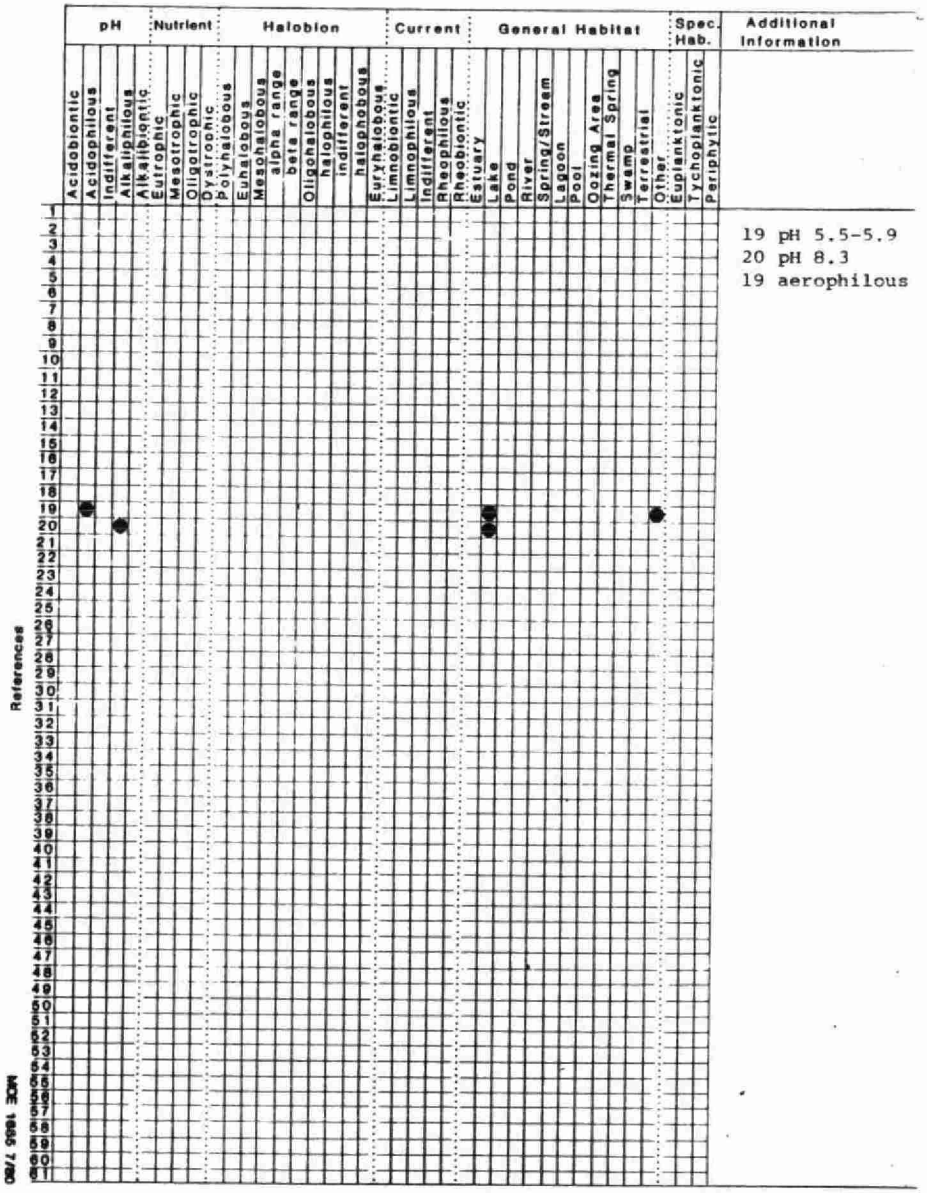
Stauroneis pygmaea Krieg.



19 pH 6.5-6.9
9.0 +
20 pH 4.0 +
48 more characteristic of headwater areas

Taxon Stauroneis lapponica Cl.

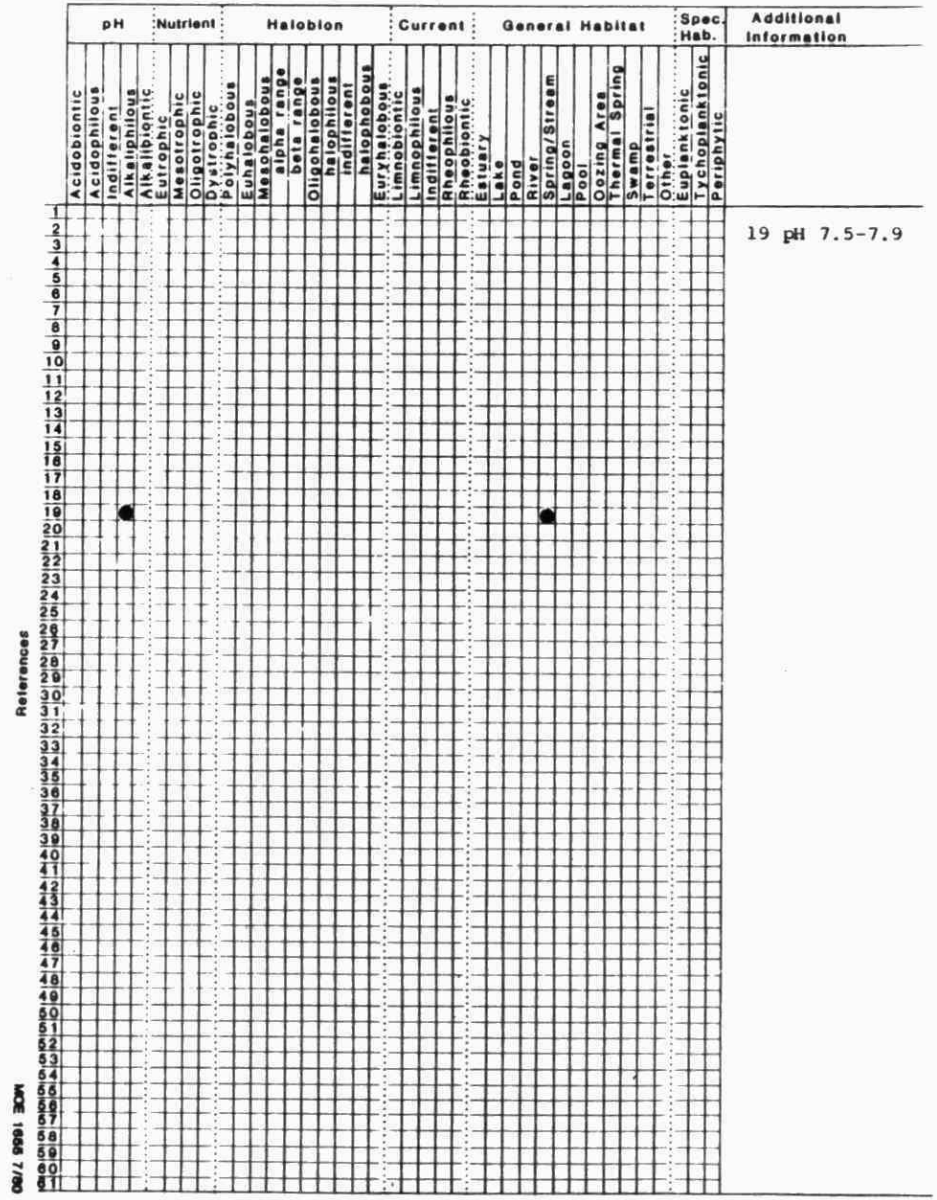
Synonym



19 pH 5.5-5.9
20 pH 8.3
19 aerophilous

Taxon Stauroneis laterostrata Hust.

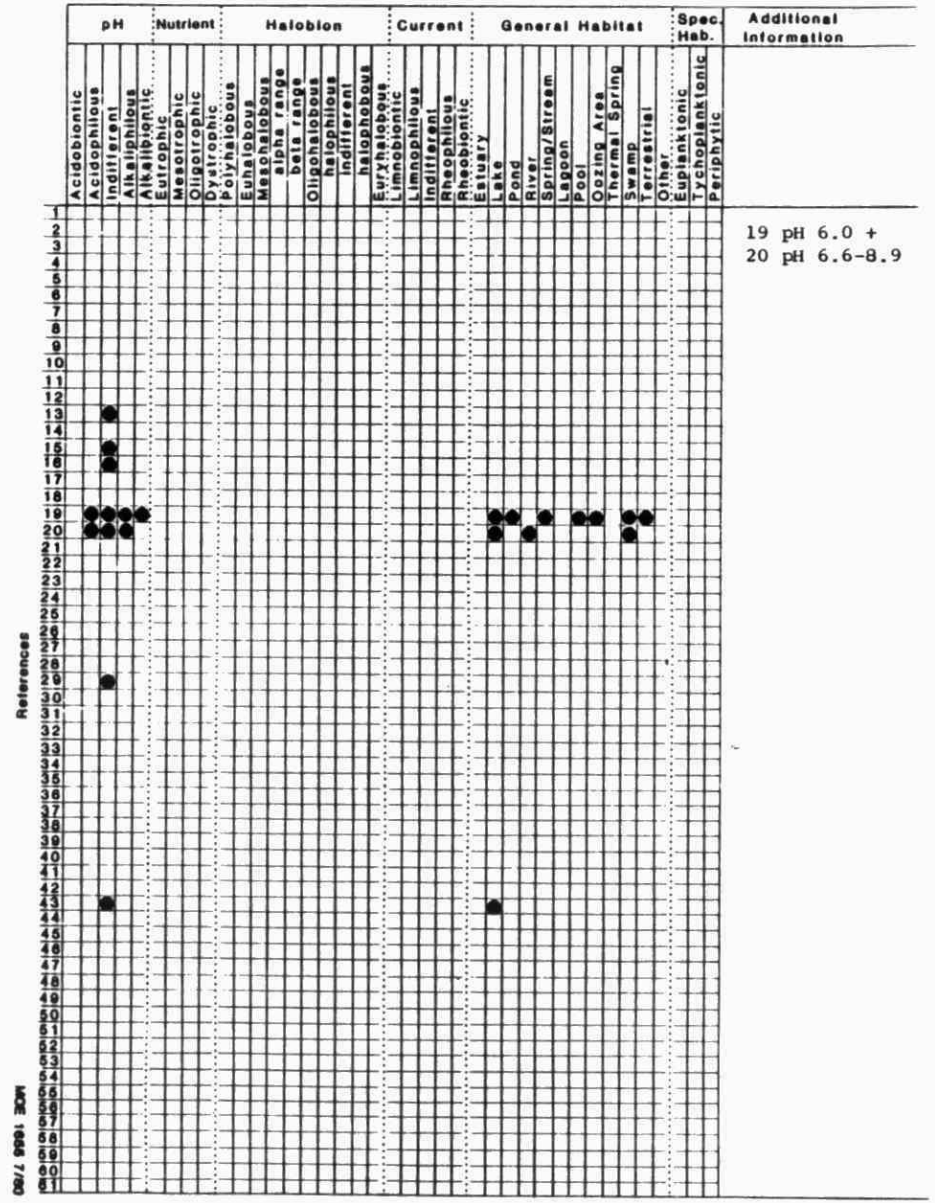
Synonym



19 pH 7.5-7.9

Taxon Stauroneis legumen (Ehr.) Kutz.

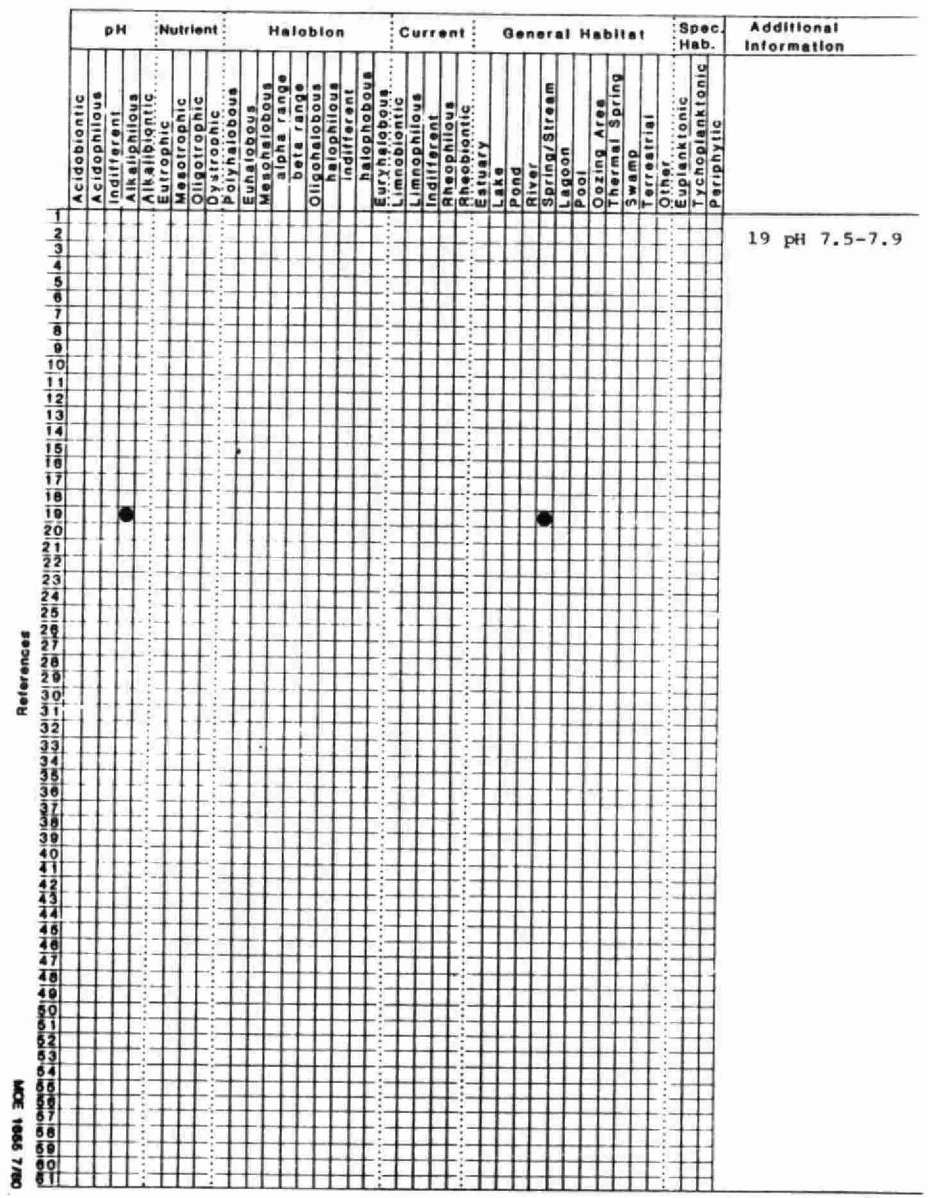
Synonym



19 pH 6.0 +
20 pH 6.6-8.9

Taxon Stauroneis nana Hust.

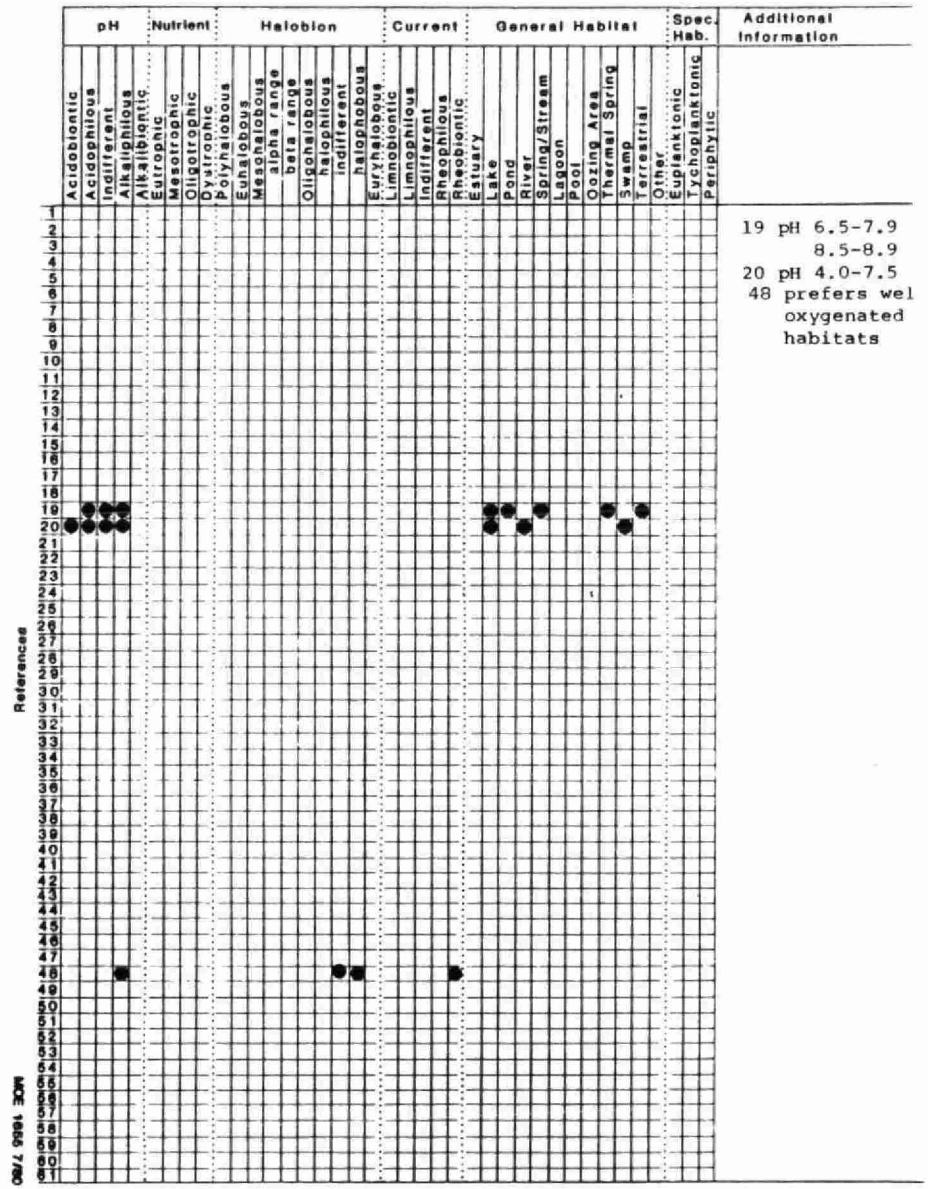
Synonym



19 pH 7.5-7.9

Taxon Stauroneis obtusa Lager.

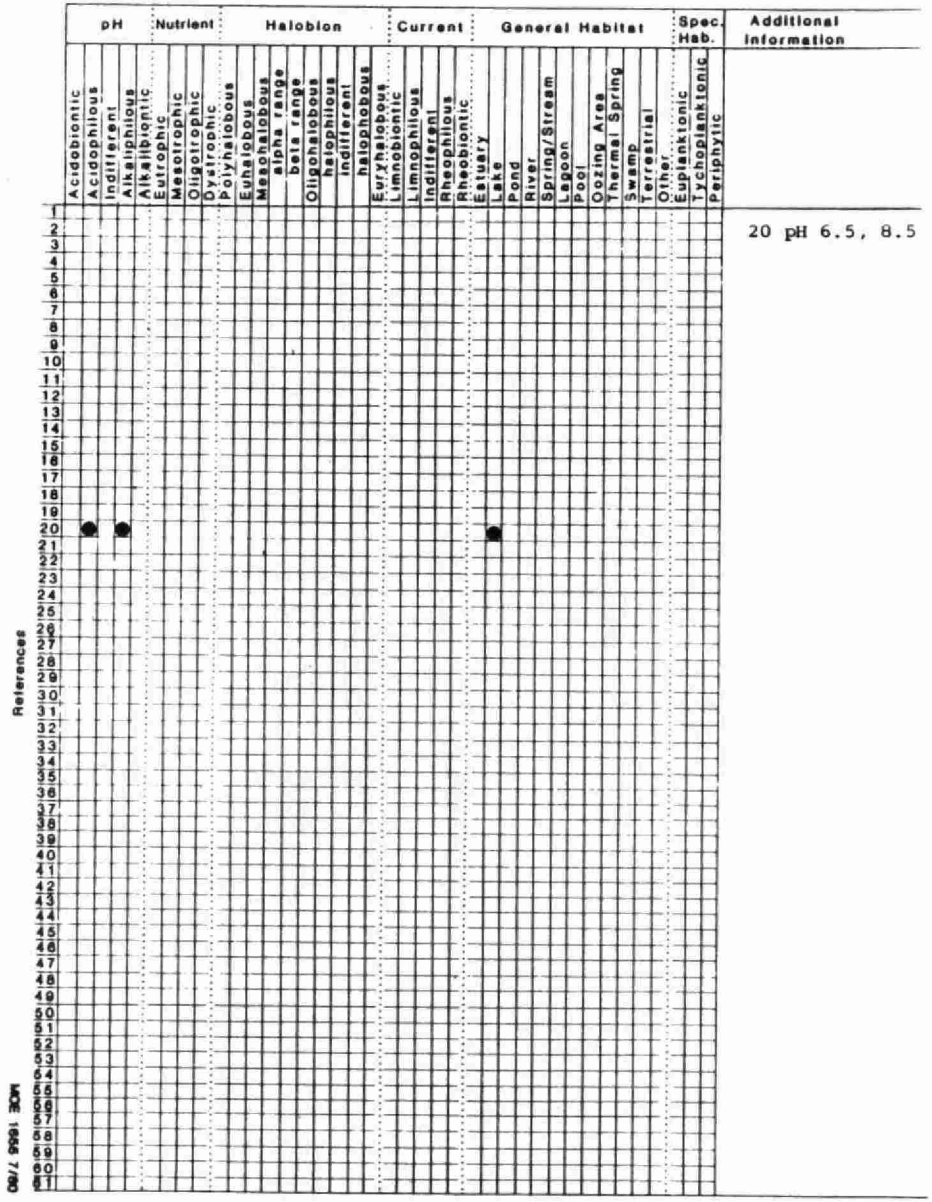
Synonym



19 pH 6.5-7.9
8.5-8.9
20 pH 4.0-7.5
48 prefers wel oxygenated habitats

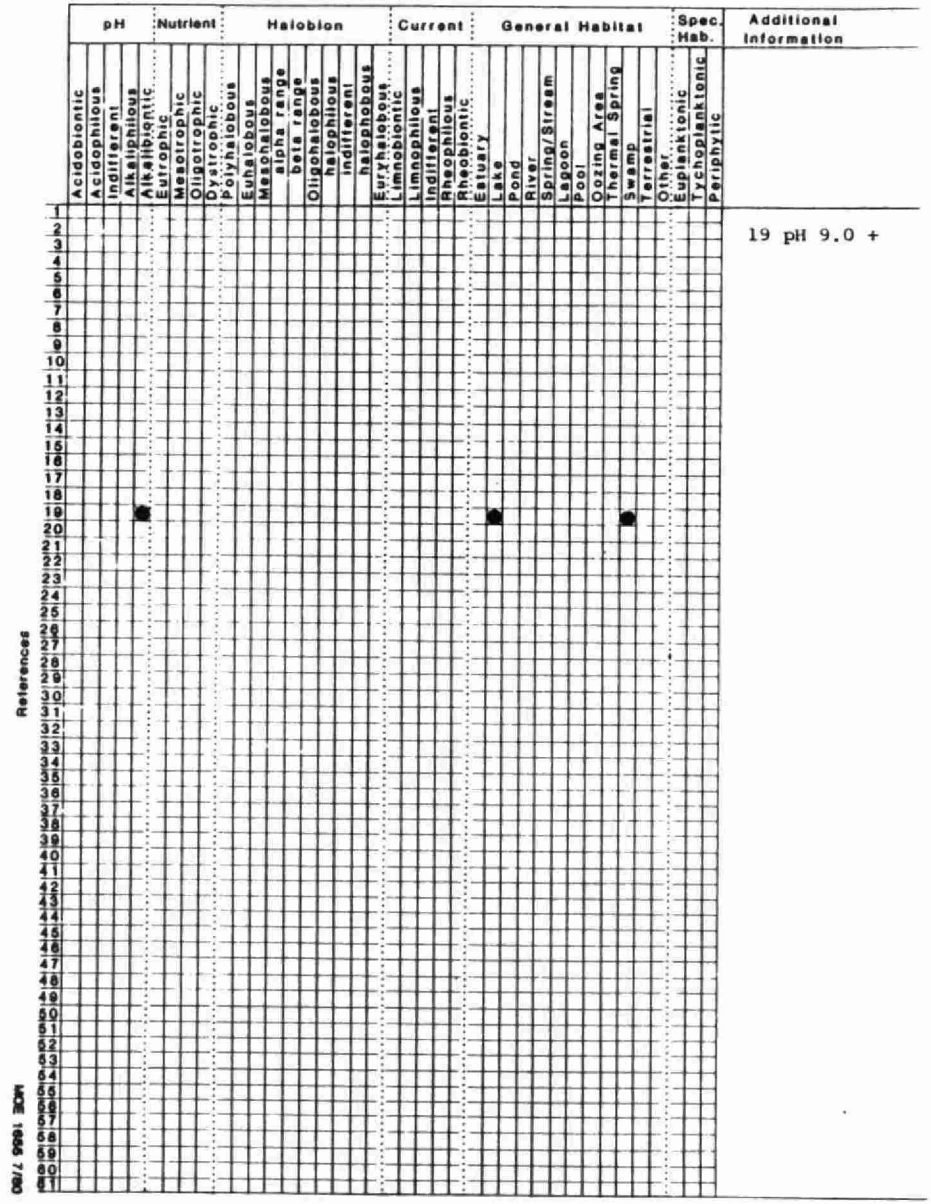
Taxon Stauroneis palustris Hust.

Synonym



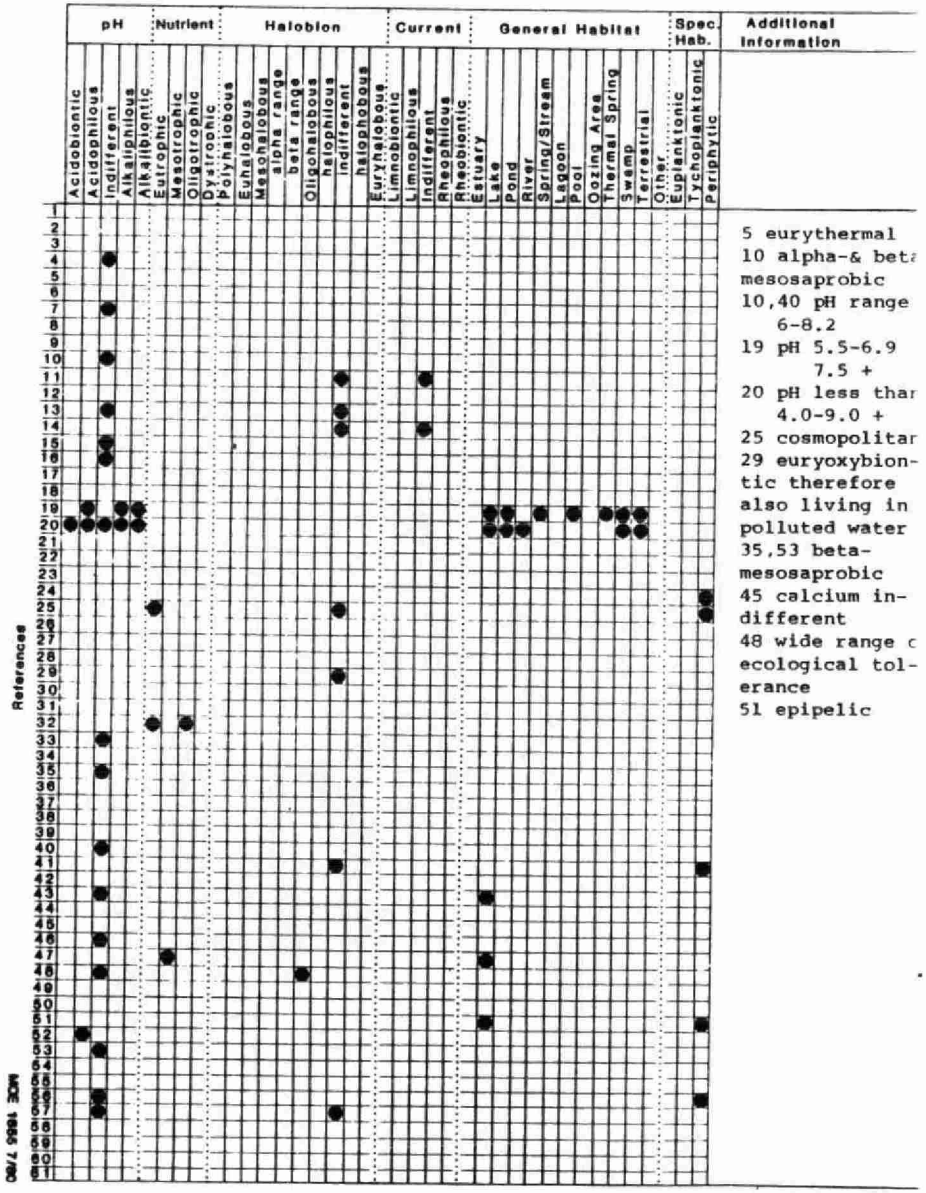
Taxon Stauroneis phoenicenteron var. brunii(M.Peraq.& Herib.)Voigt

Synonym



Taxon Stauroneis phoenicenteron (Nitz.) Ehr. var. phoenicenteron

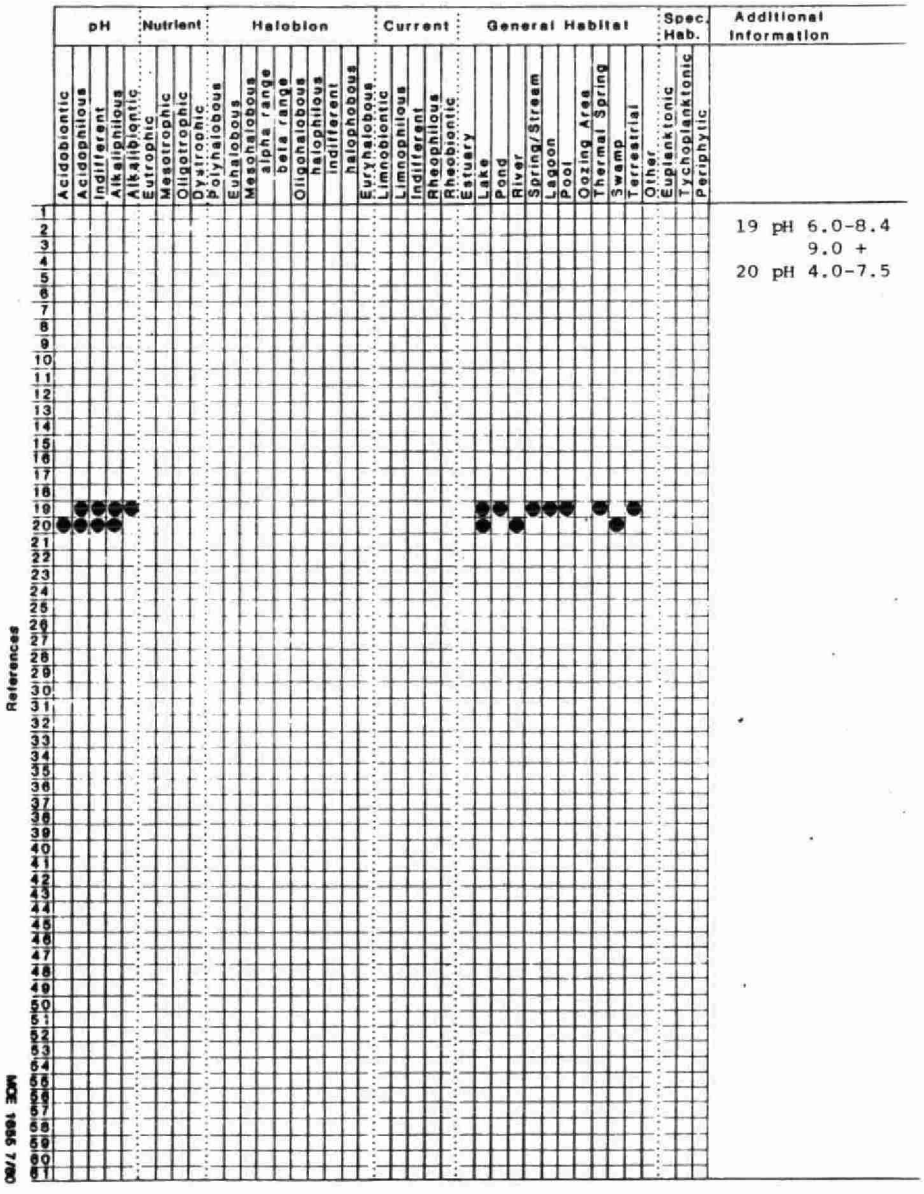
Synonym



5 eurythermal
10 alpha-& beta mesosaprobic
10,40 pH range 6-8.2
19 pH 5.5-6.9 7.5 +
20 pH less than 4.0-9.0 +
25 cosmopolitan
29 euryoxybiontic therefore also living in polluted water
35,53 beta-mesosaprobic
45 calcium indifferent
48 wide range of ecological tolerance
51 epipelic

Taxon Stauroneis producta Grun.

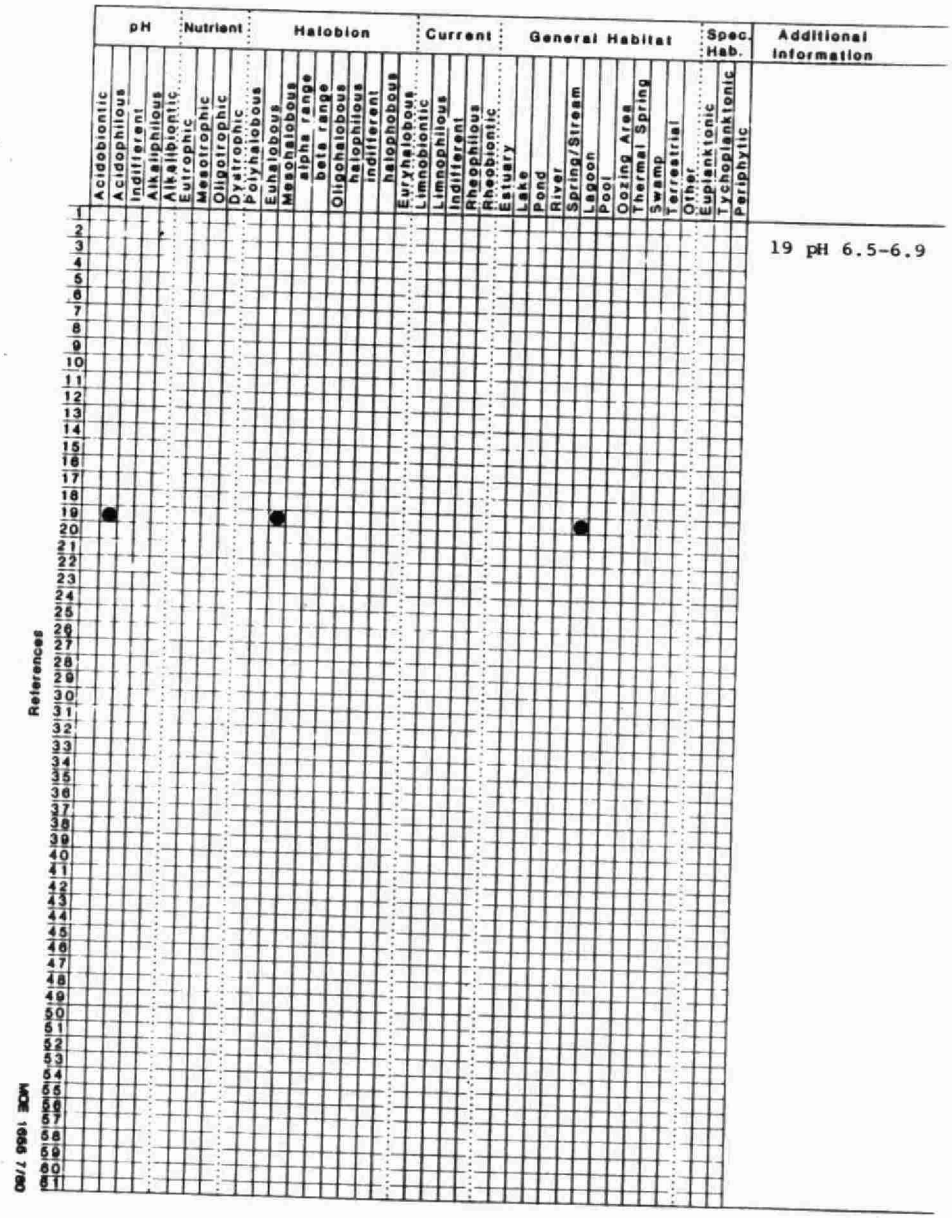
Synonym



19 pH 6.0-8.4 9.0 +
20 pH 4.0-7.5

Taxon Stauroneis salina W. Sm.

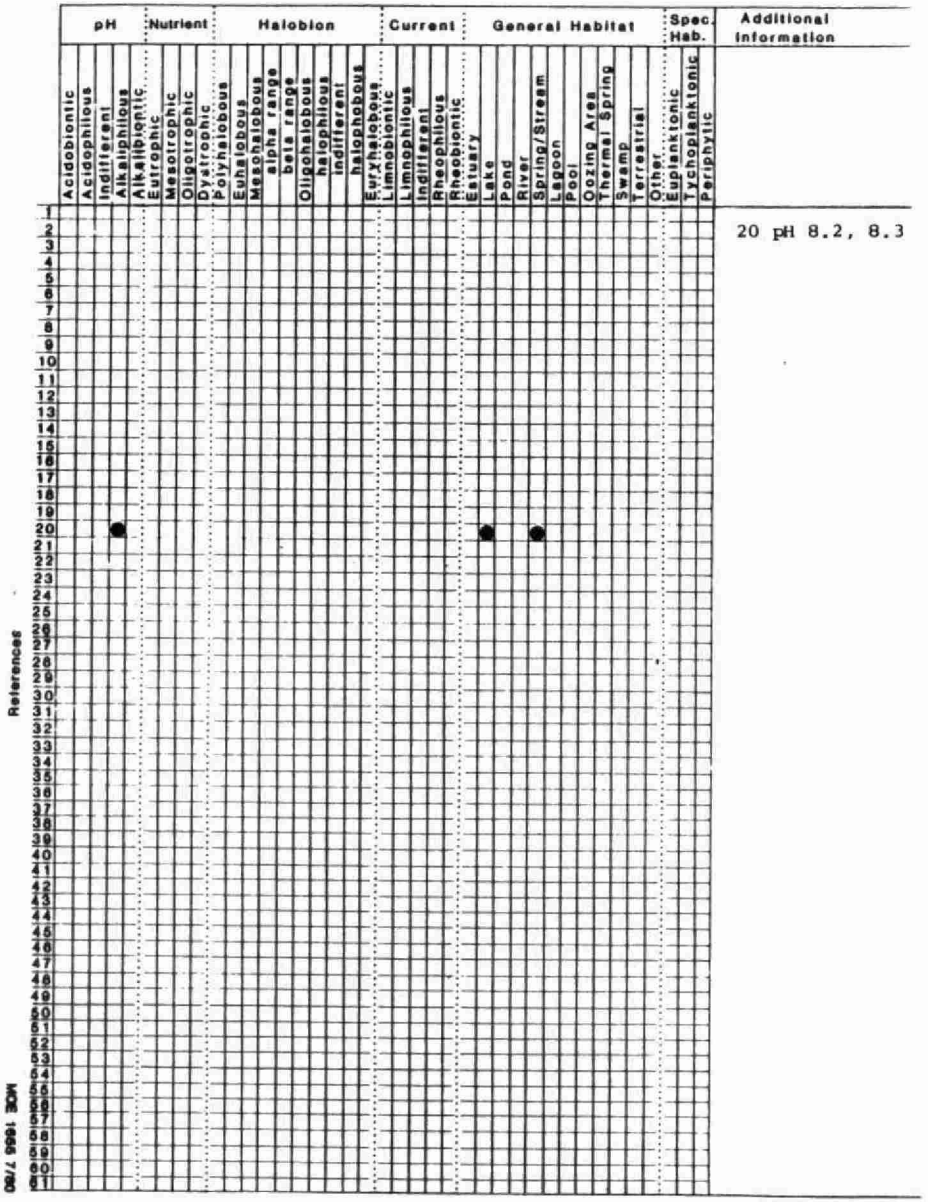
Synonym



19 pH 6.5-6.9

Taxon Stauroneis smithii var. borgei (Mang.) Hust.

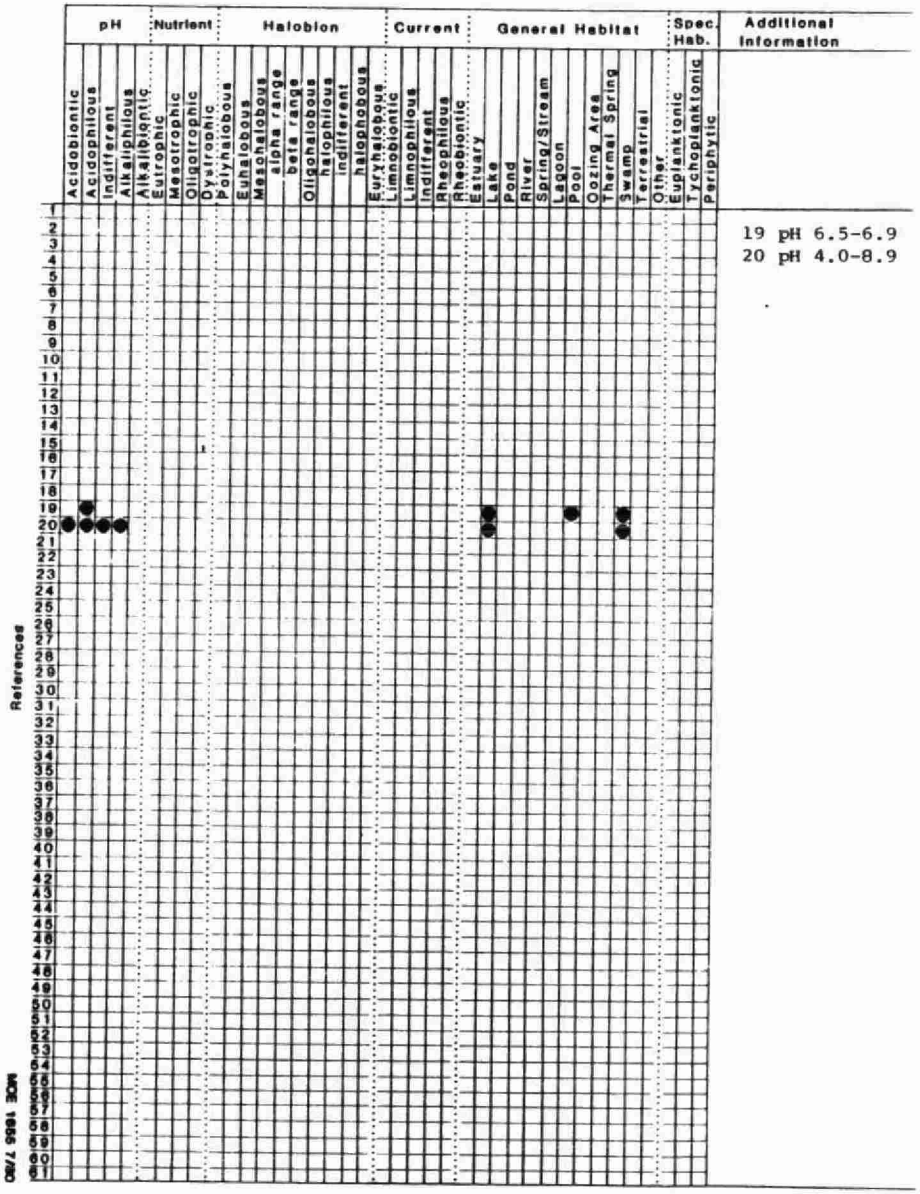
Synonym



20 pH 8.2, 8.3

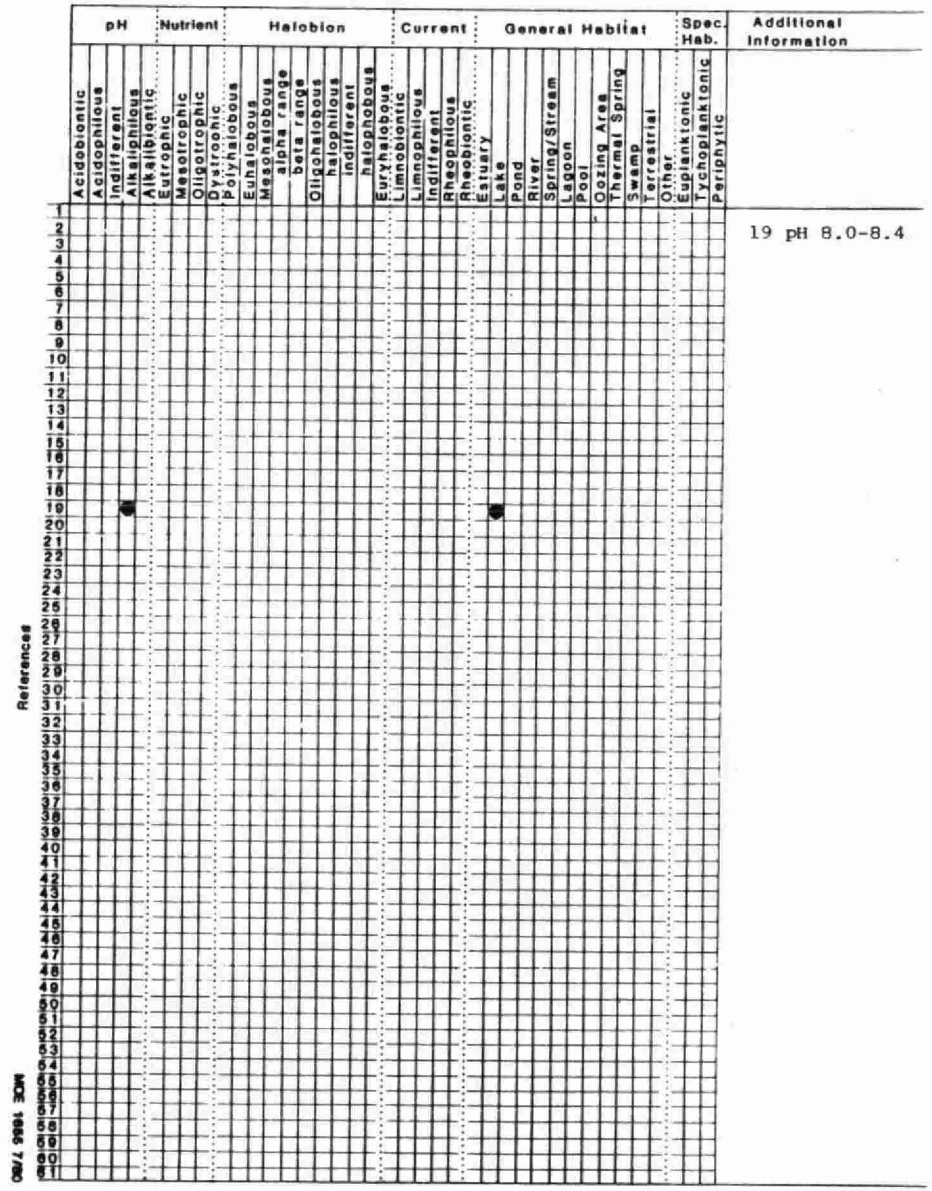
Taxon Stauroneis smithii var. incisa Pant.

Synonym



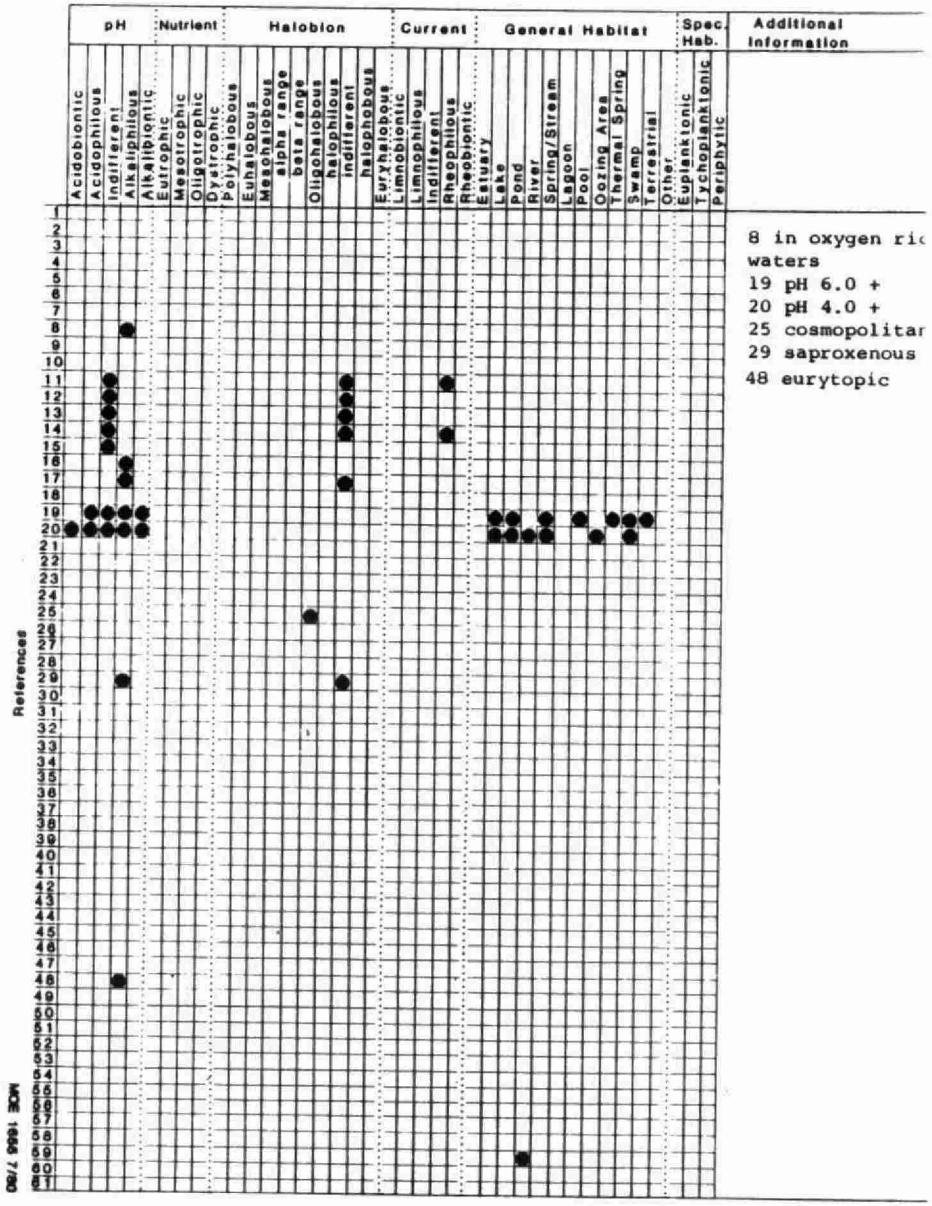
Taxon Stauroneis smithii var. sagitta (Cl.) Hust.

Synonym



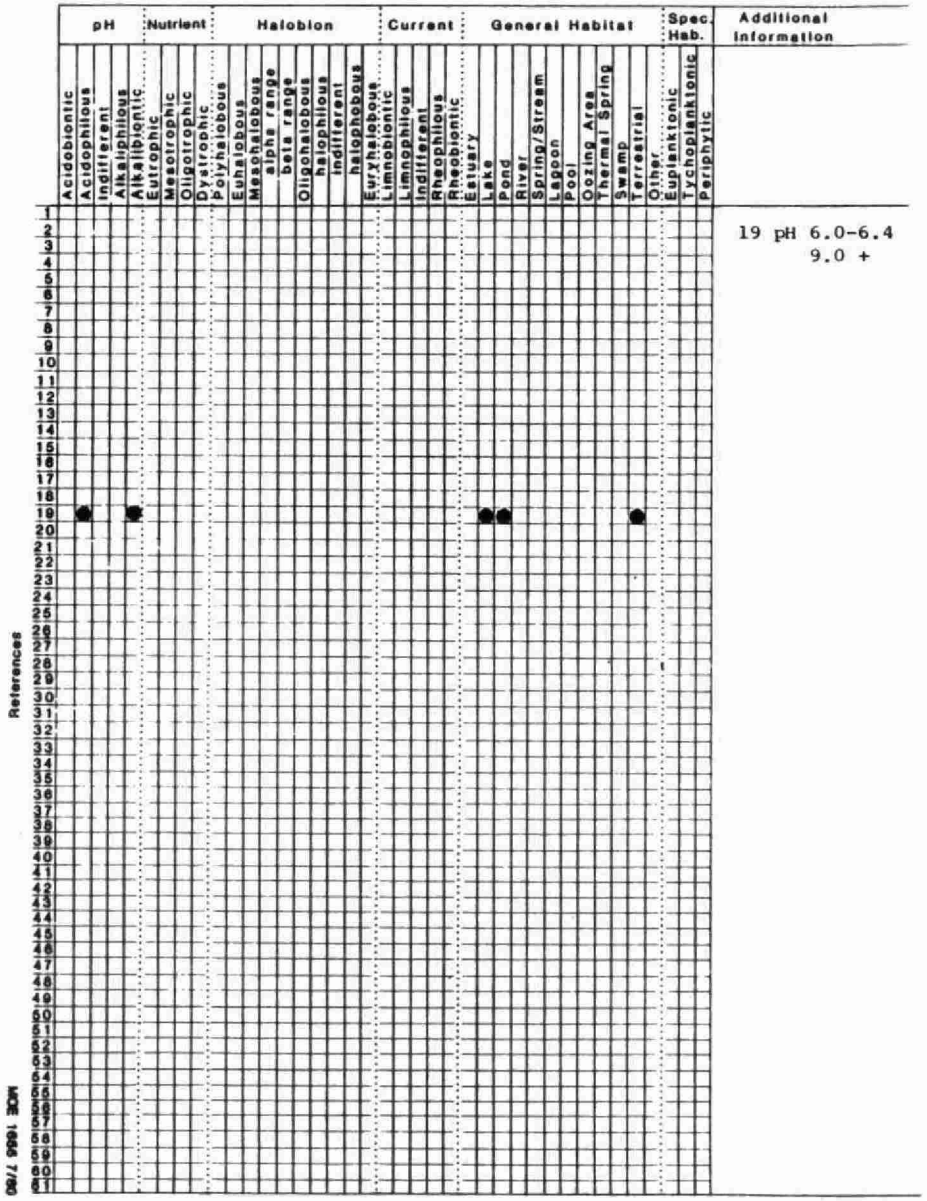
Taxon Stauroneis smithii Grun. var. smithii

Synonym



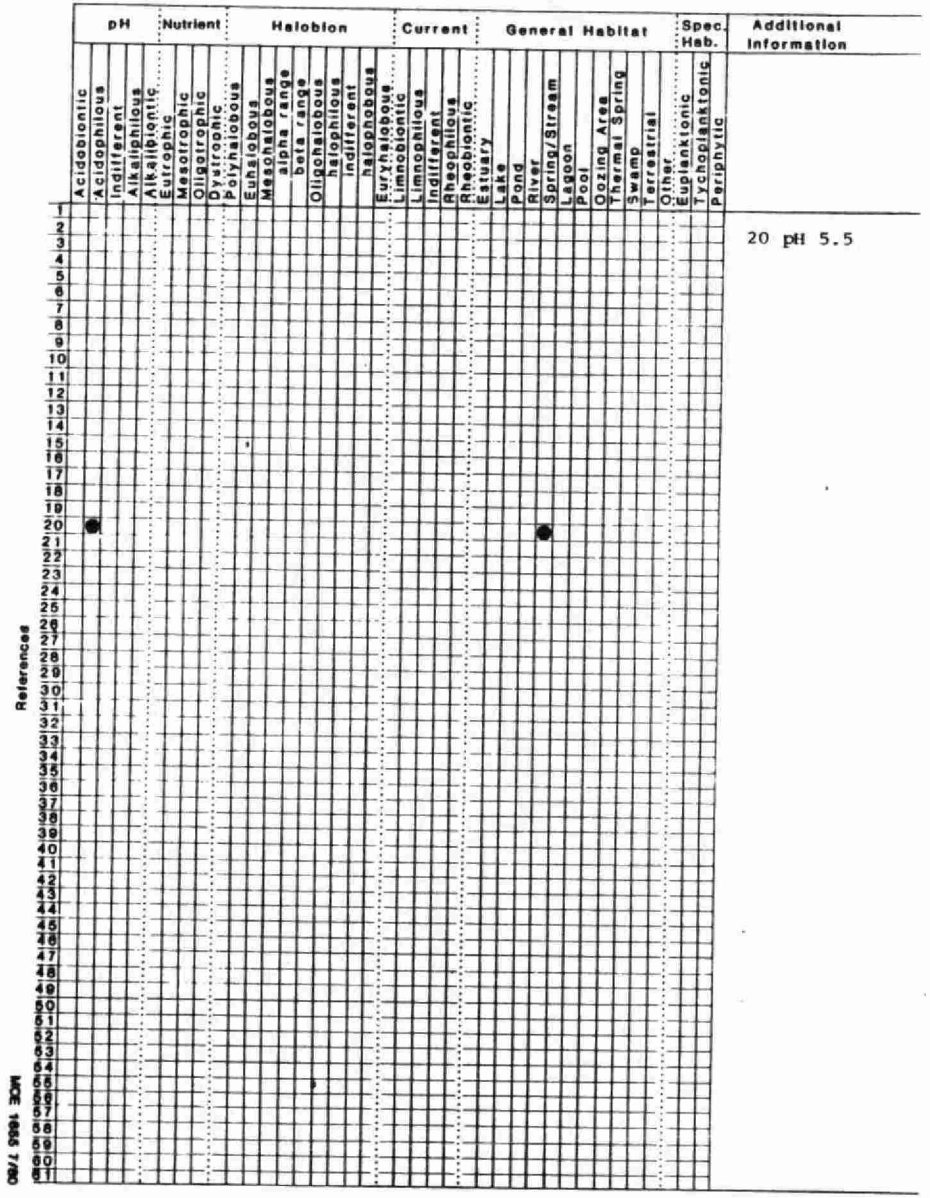
Taxon Stauroneis undata Hust.

Synonym



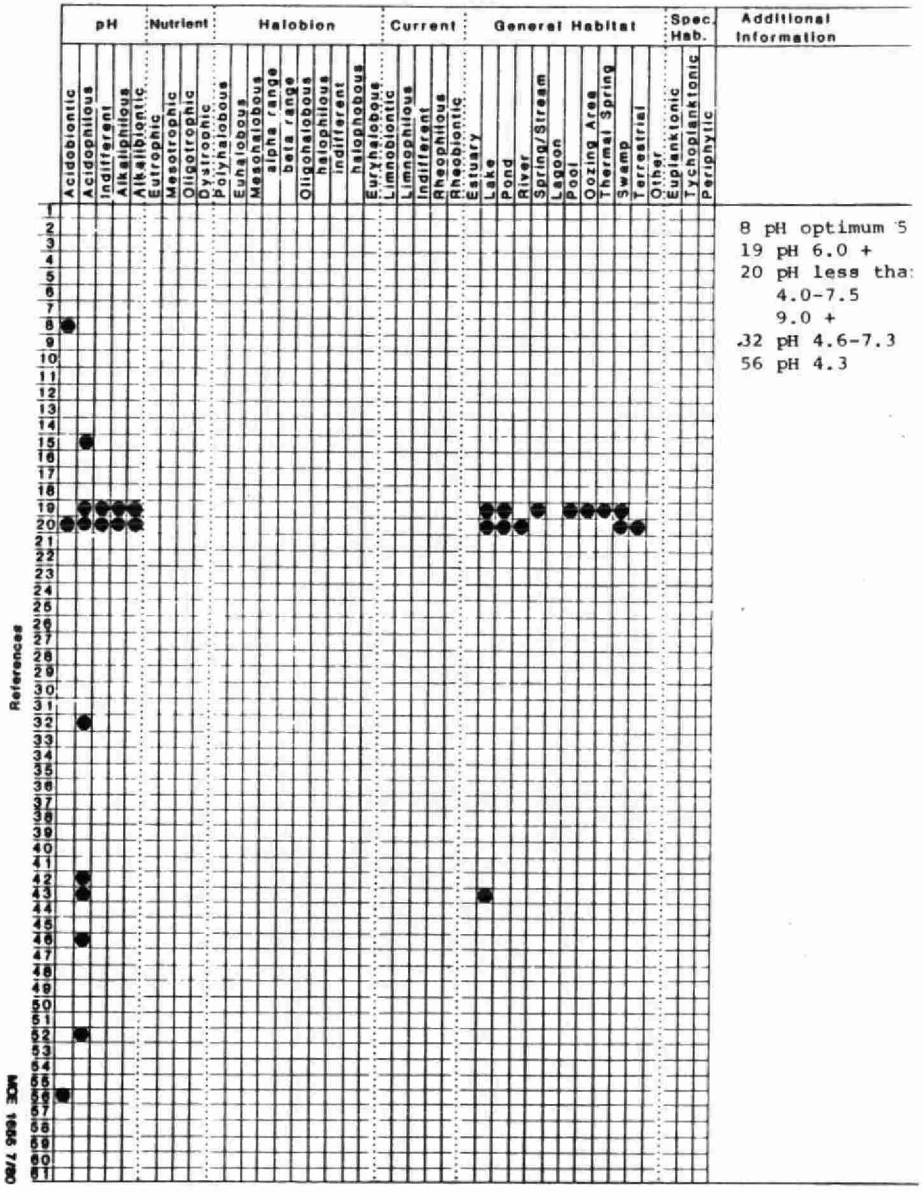
Taxon Stenopterobia intermedia var. capitata Font.

Synonym



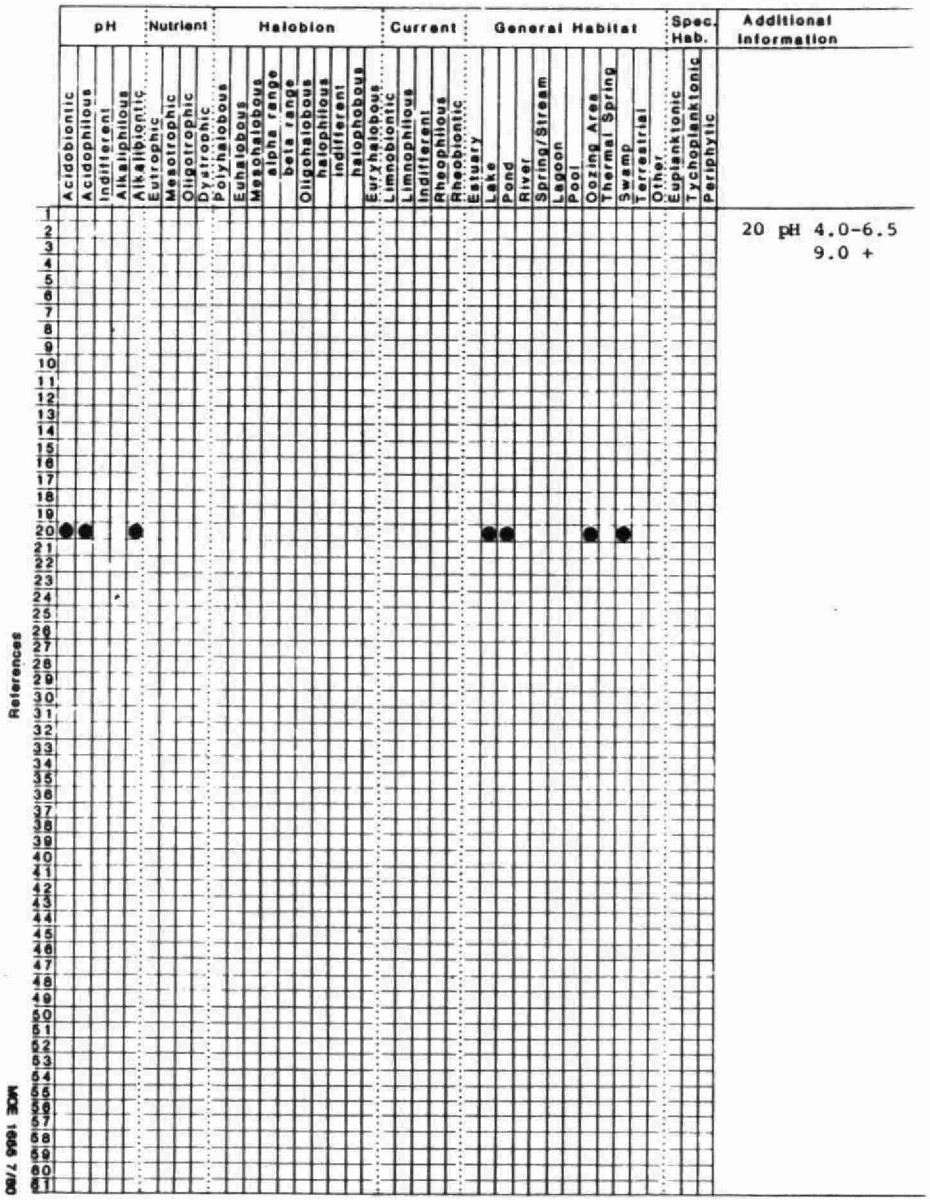
Taxon Stenopterobia intermedia Lewis var. intermedia

Synonym



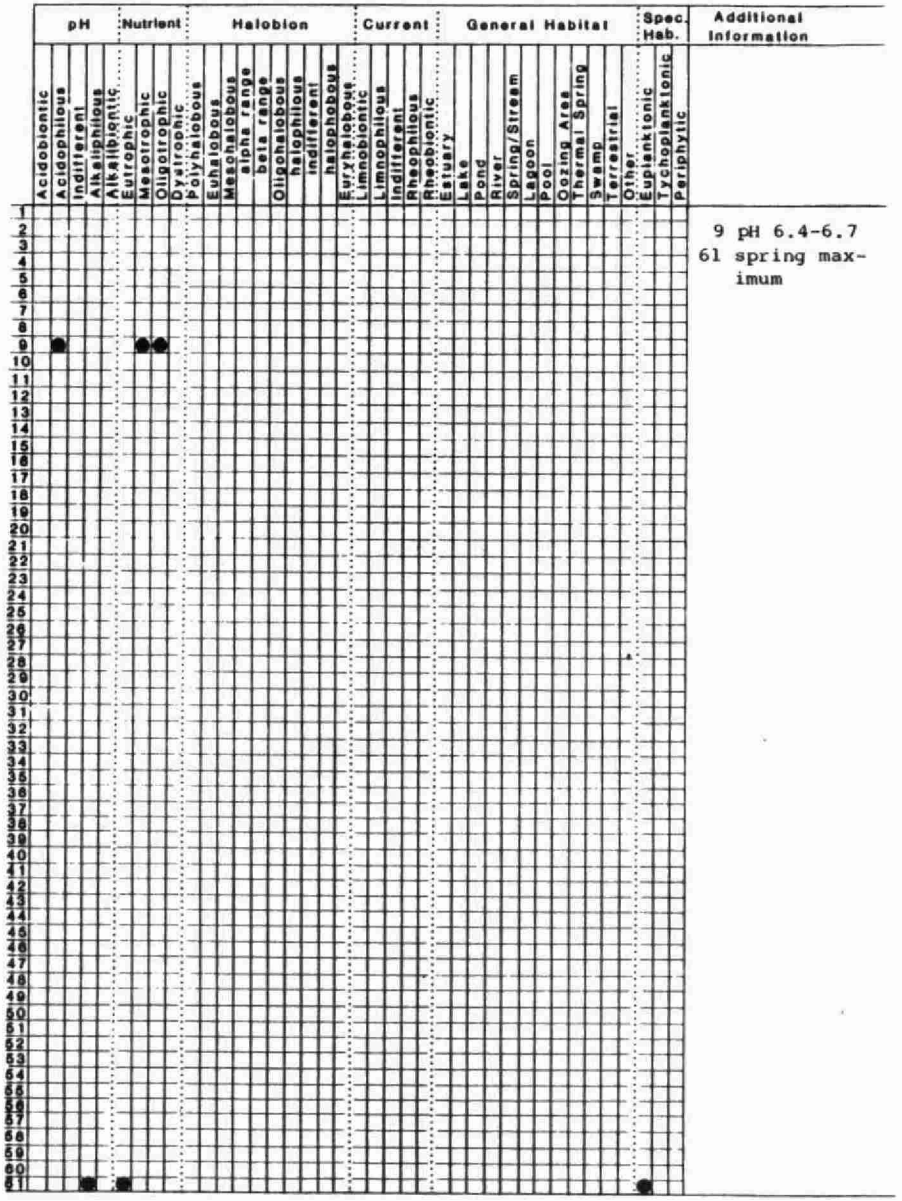
Taxon Stenopterobia intermedia f. subacuta Fricke

Synonym



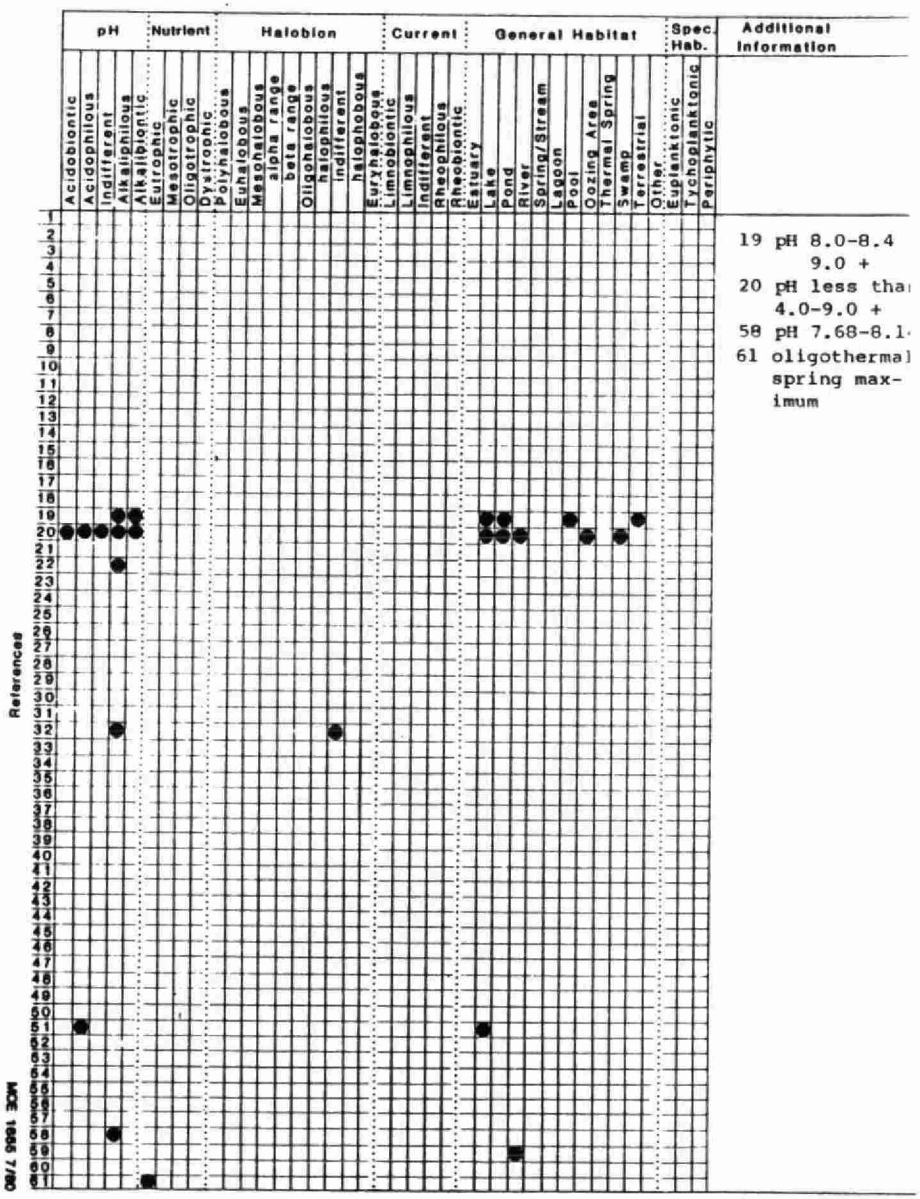
Taxon Stephanodiscus sp.

Synonym



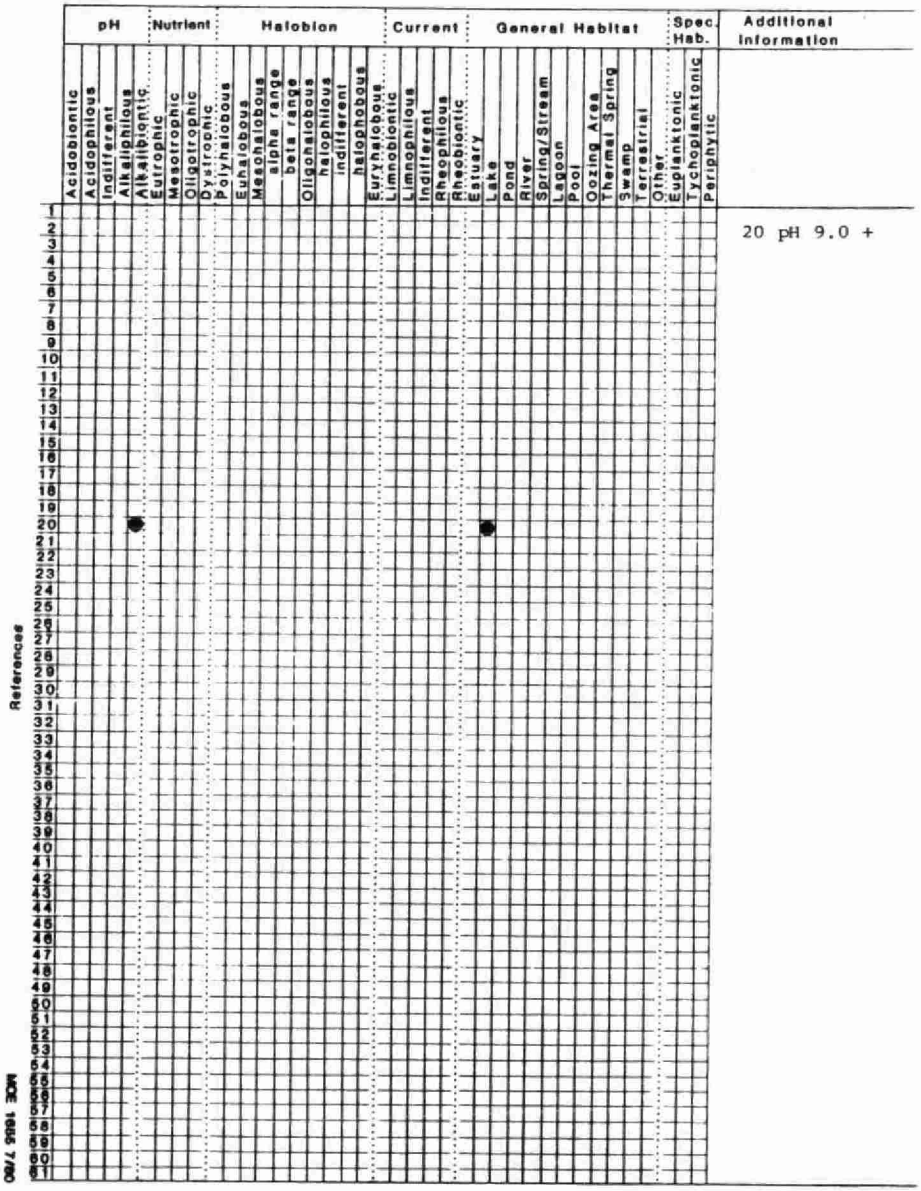
Taxon Stephanodiscus astraea (Ehr.) Grun. var. astraea

Synonym



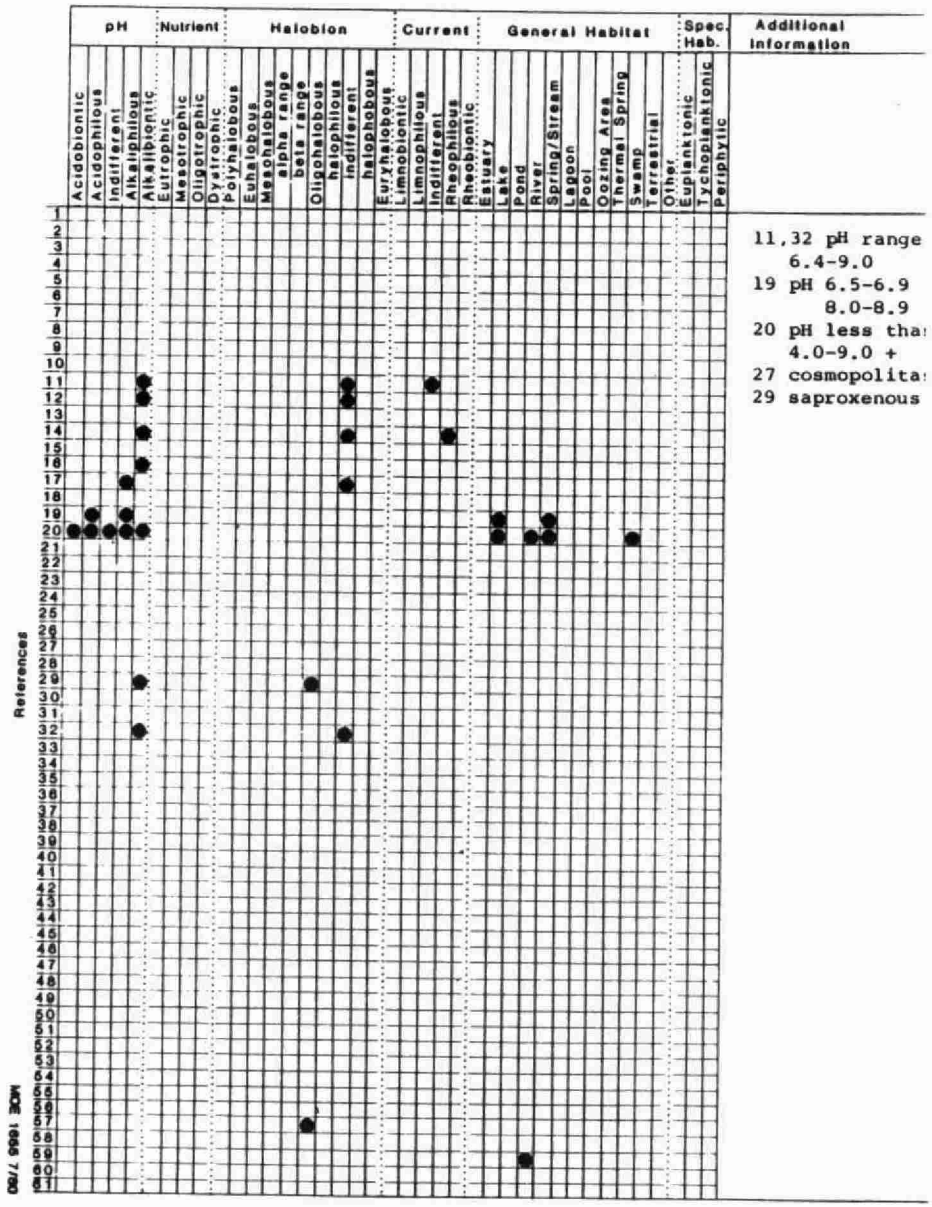
Taxon Stephanodiscus astraea var. intermedia Fricke

Synonym



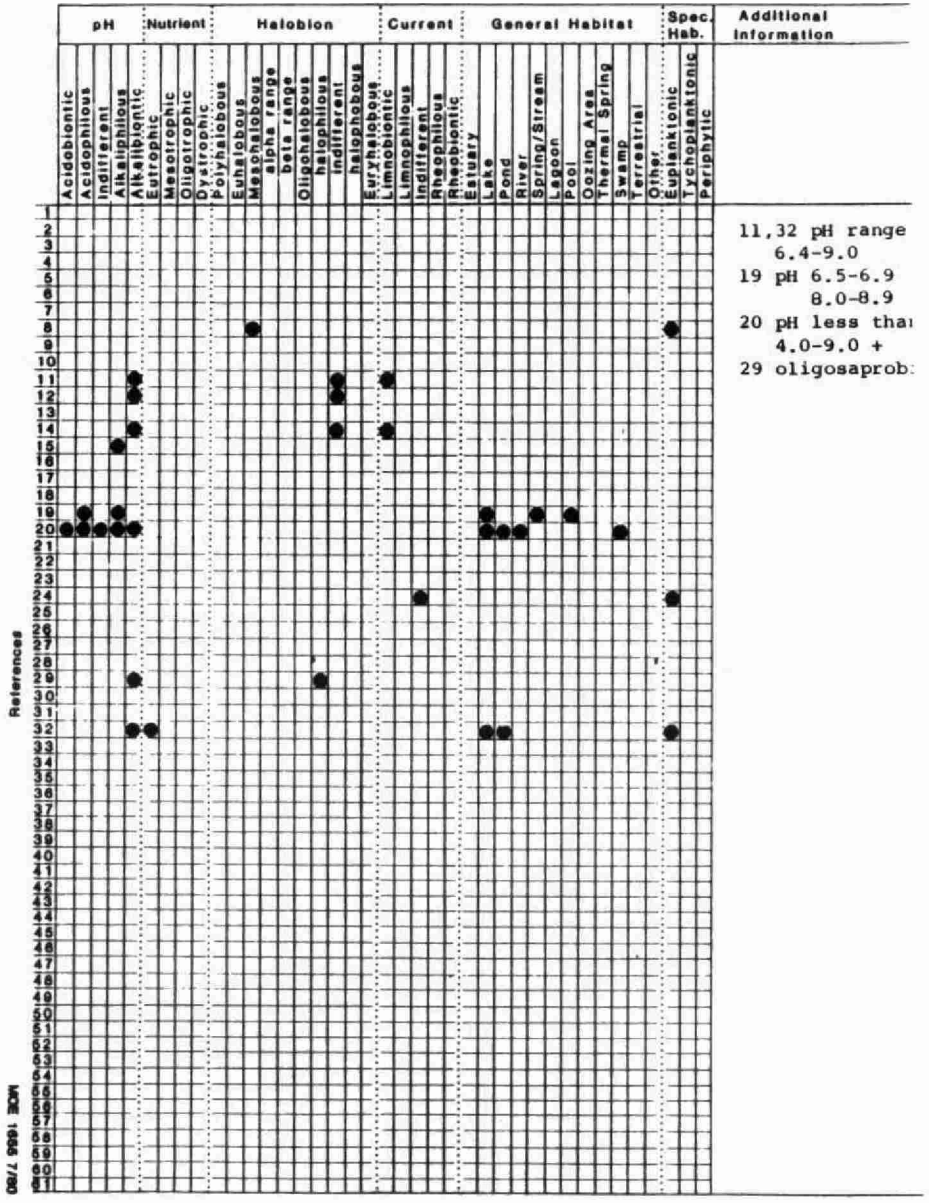
Taxon Stephanodiscus astraea var. minutula (Kutz.) Grun.

Synonym



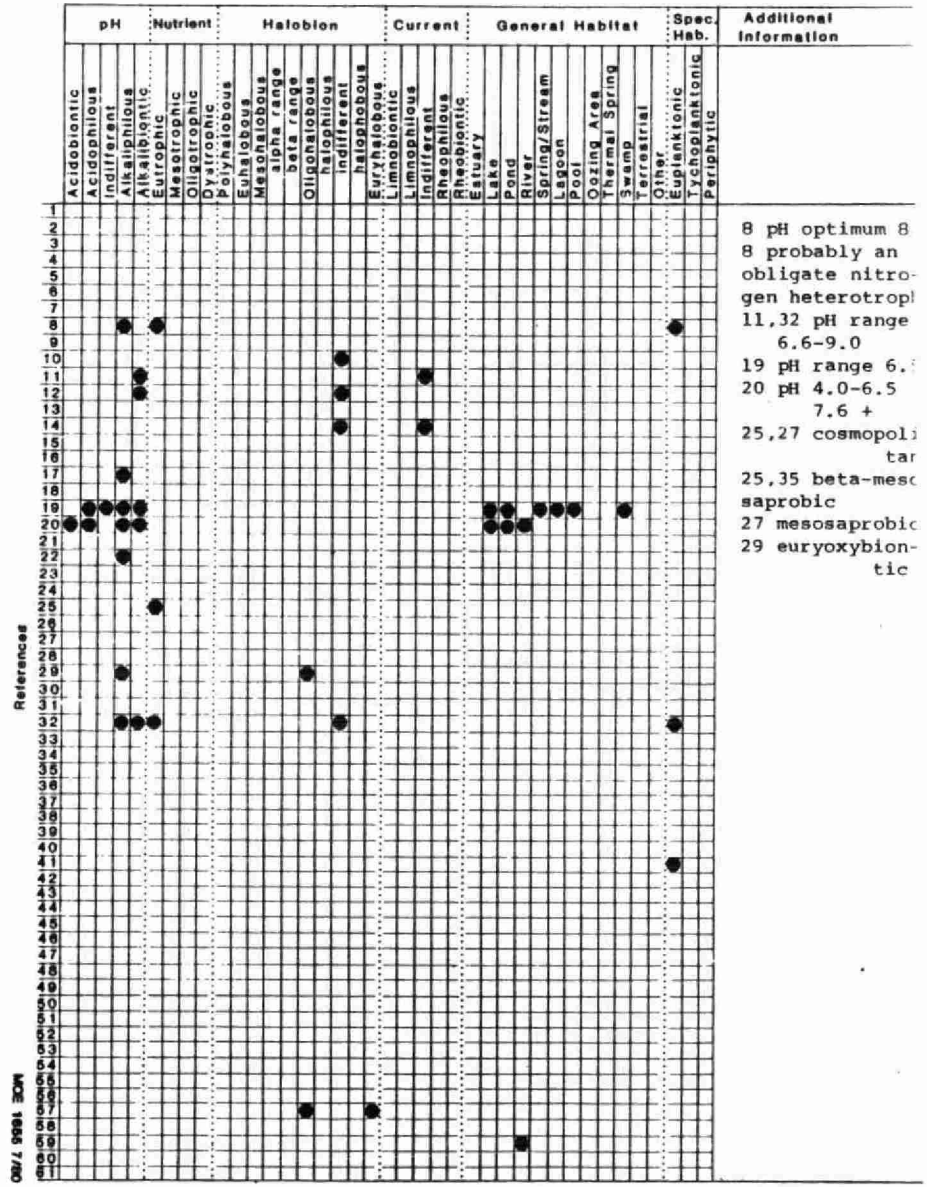
Taxon Stephanodiscus dubius (Fricke) Hust.

Synonym



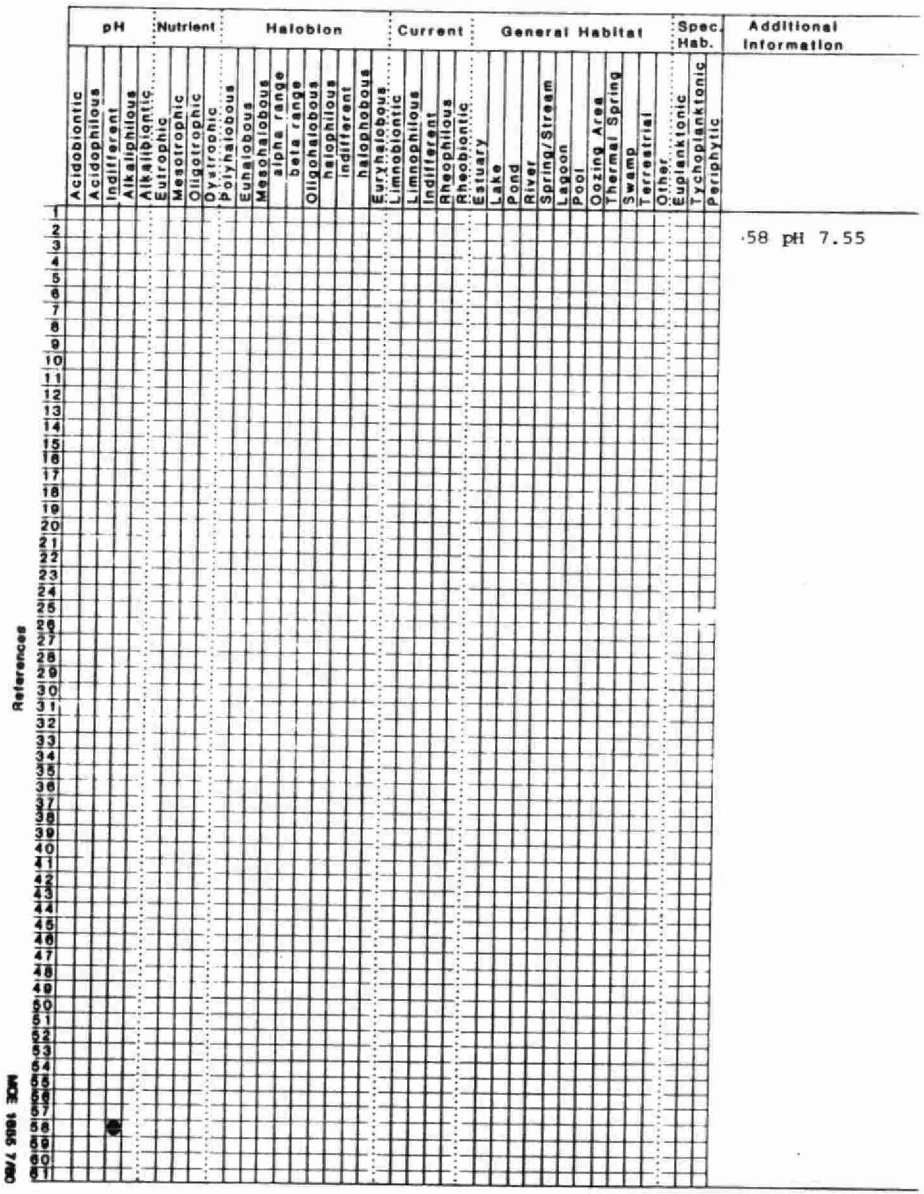
Taxon Stephanodiscus hantzschii Grun.

Synonym



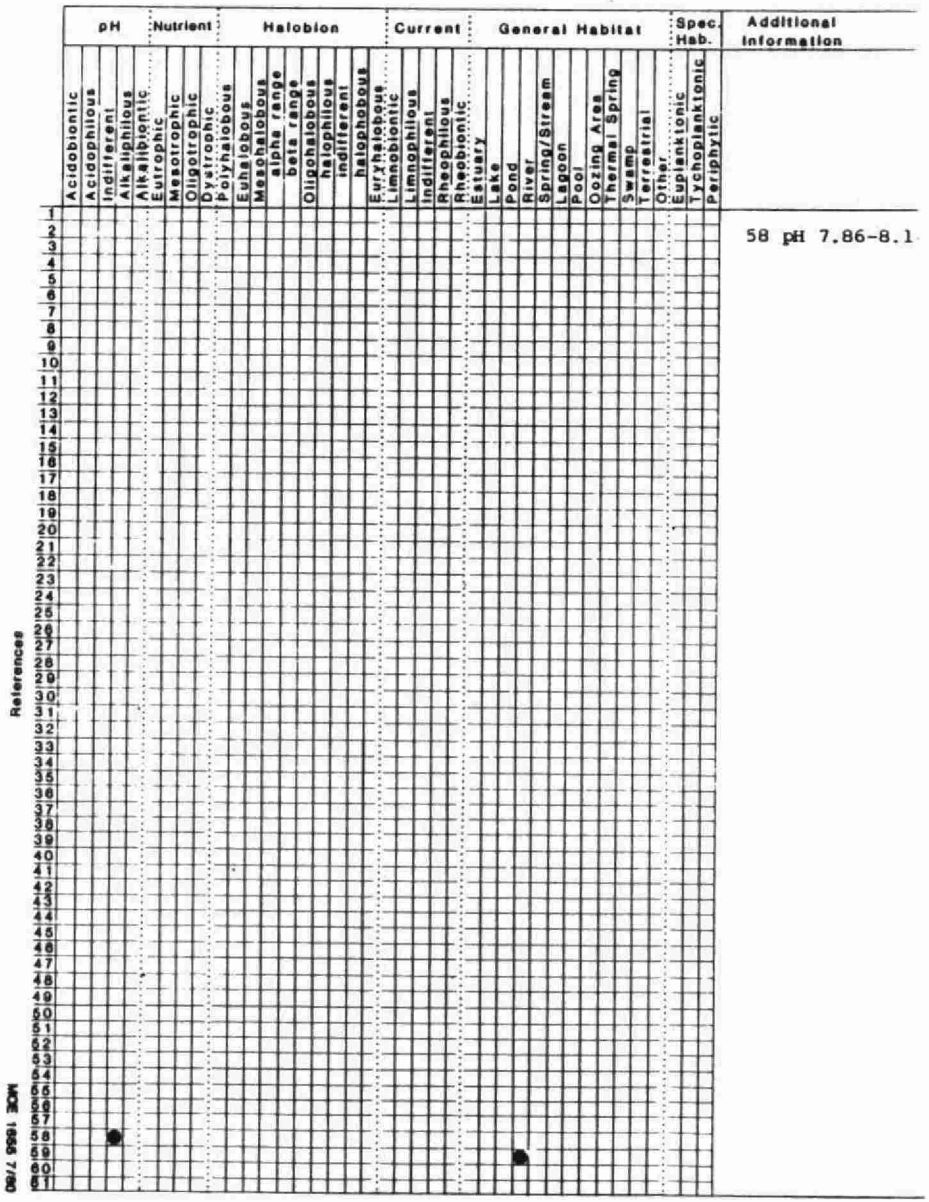
Taxon Stephanodiscus lucens Hust.

Synonym



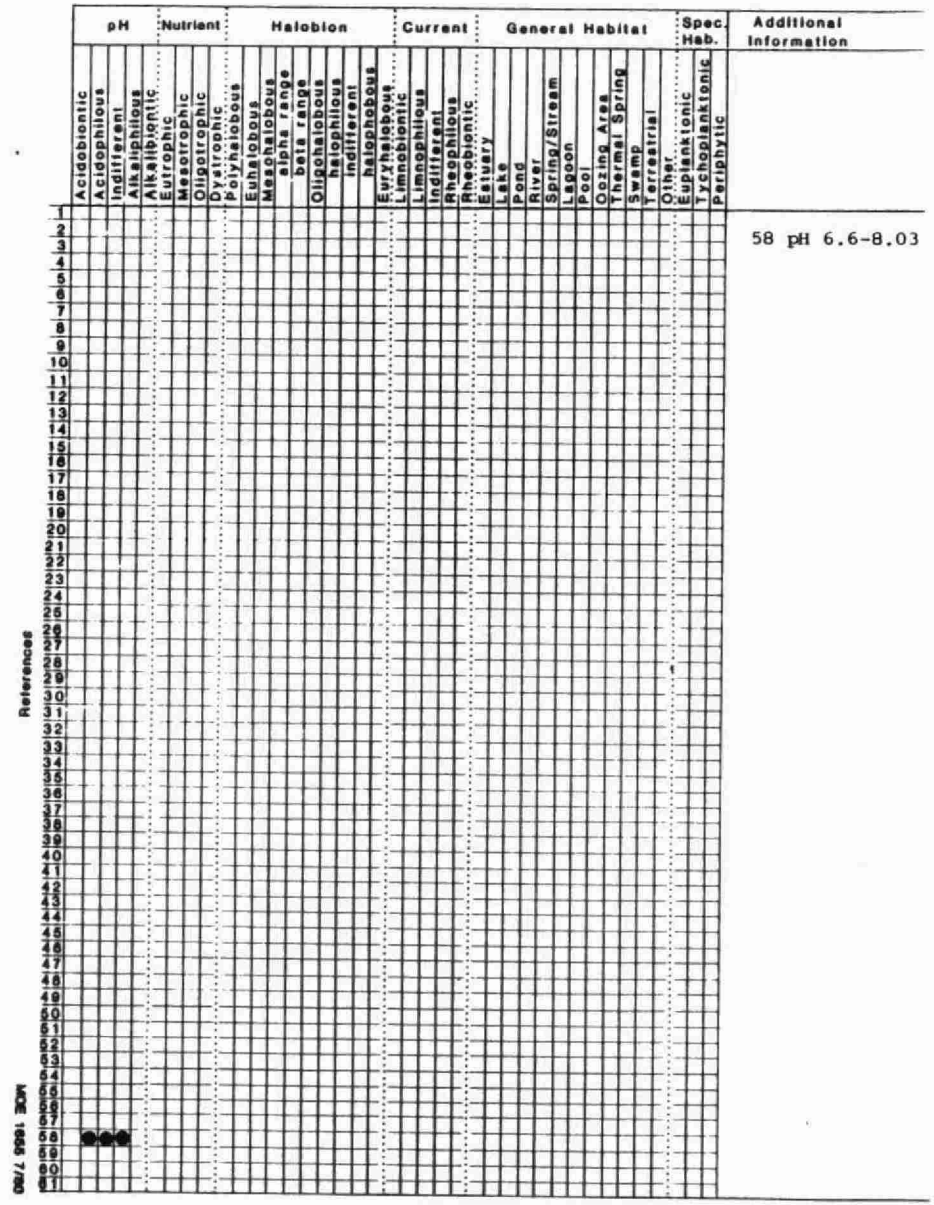
Taxon Stephanodiscus niagarae Ehr.

Synonym



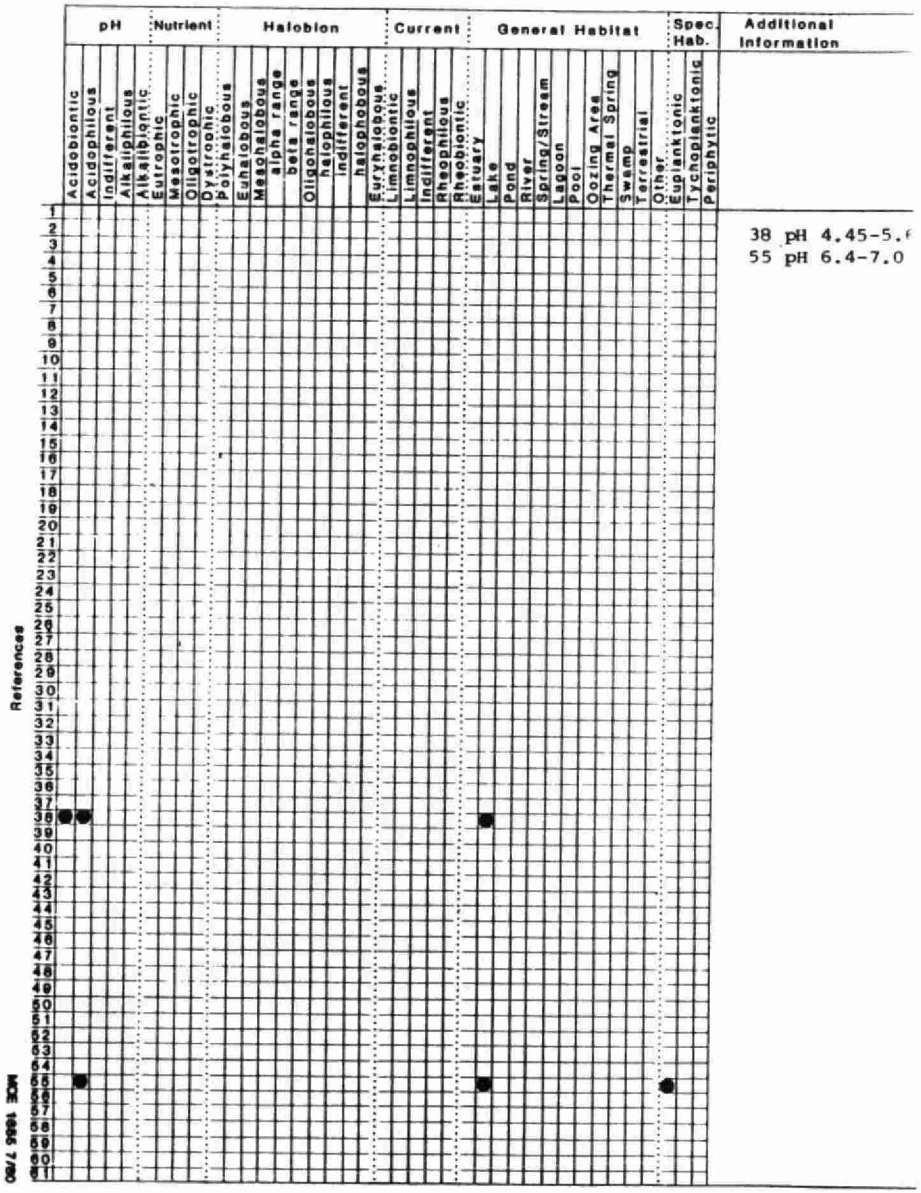
Taxon Stephanodiscus tenuis Hust.

Synonym



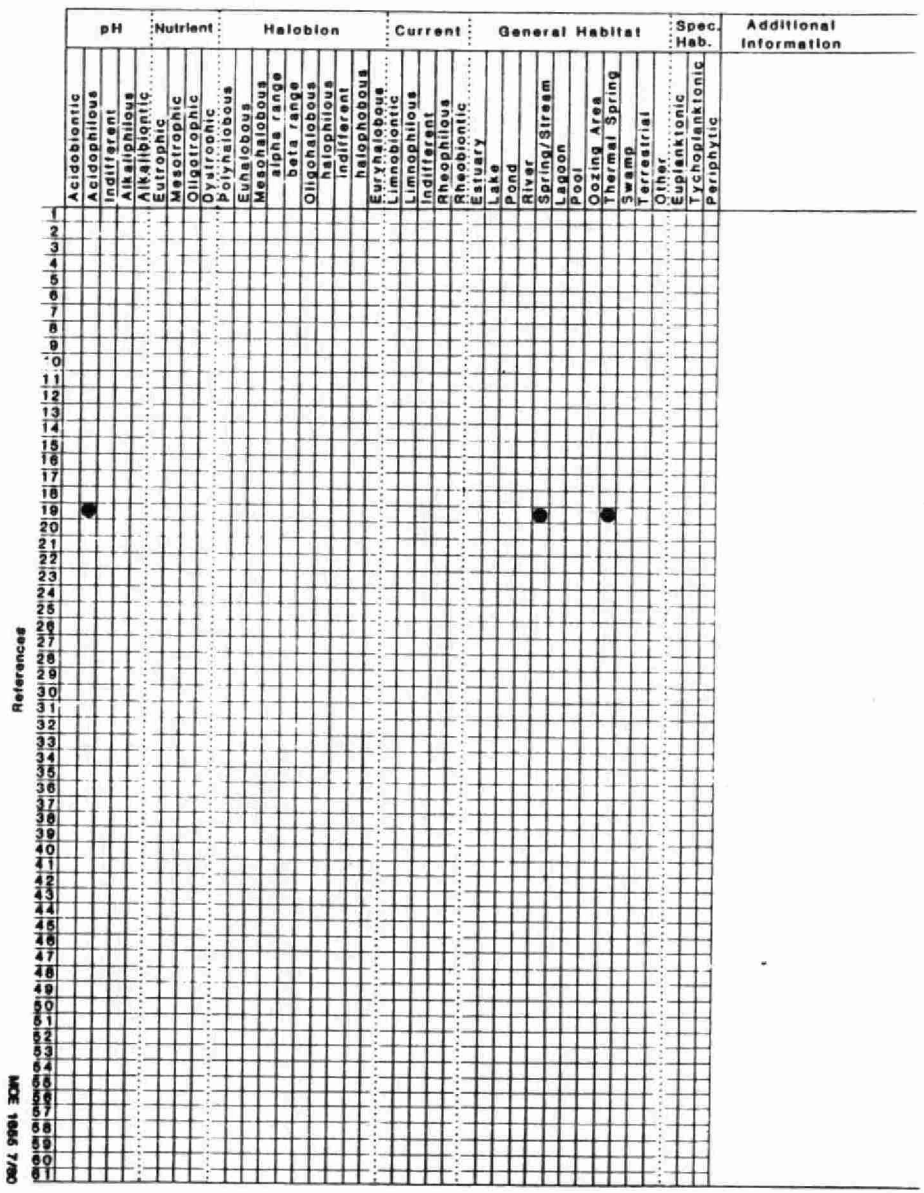
Taxon Surirella sp.

Synonym



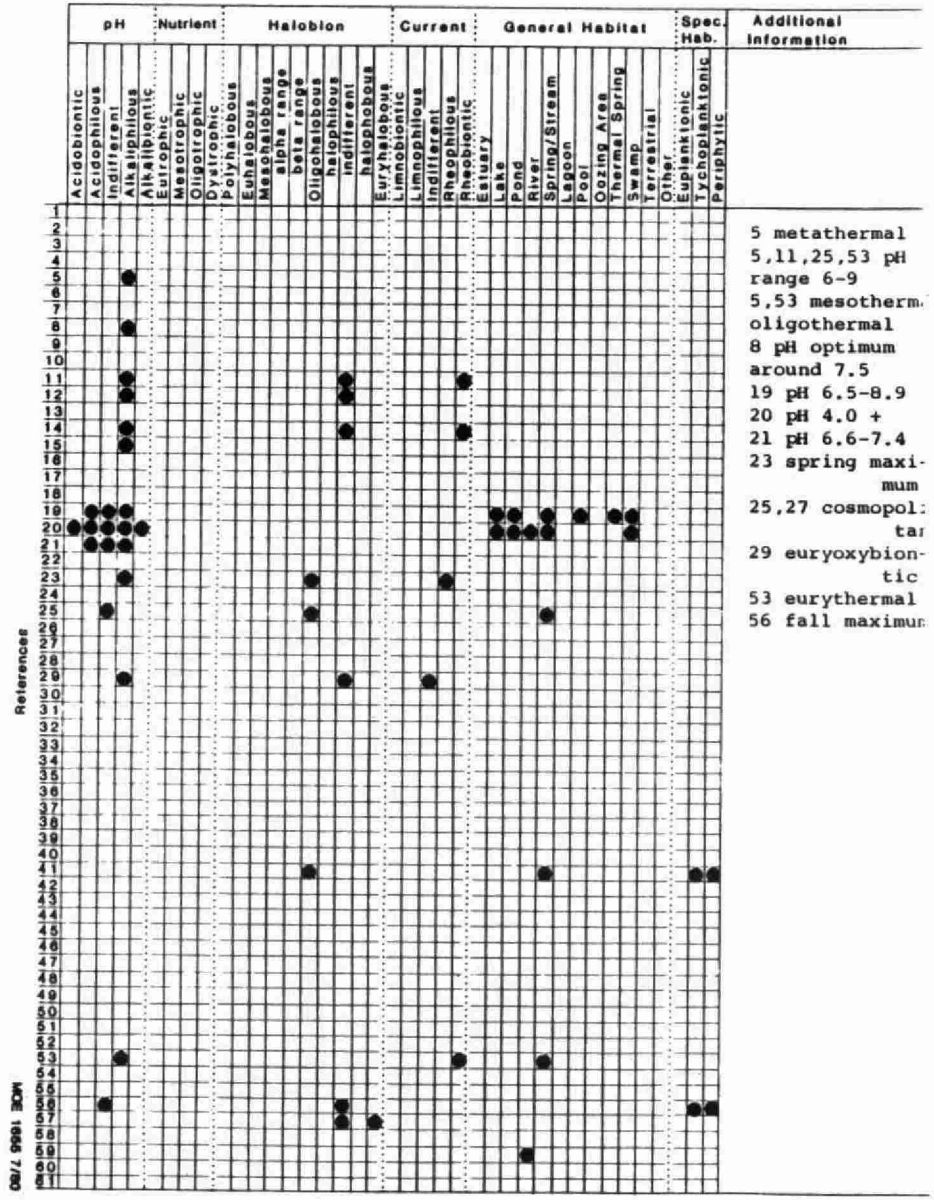
Taxon Surirella adumbratus Hohn & Heller

Synonym



Taxon Surirella angusta Kutz.

Synonym

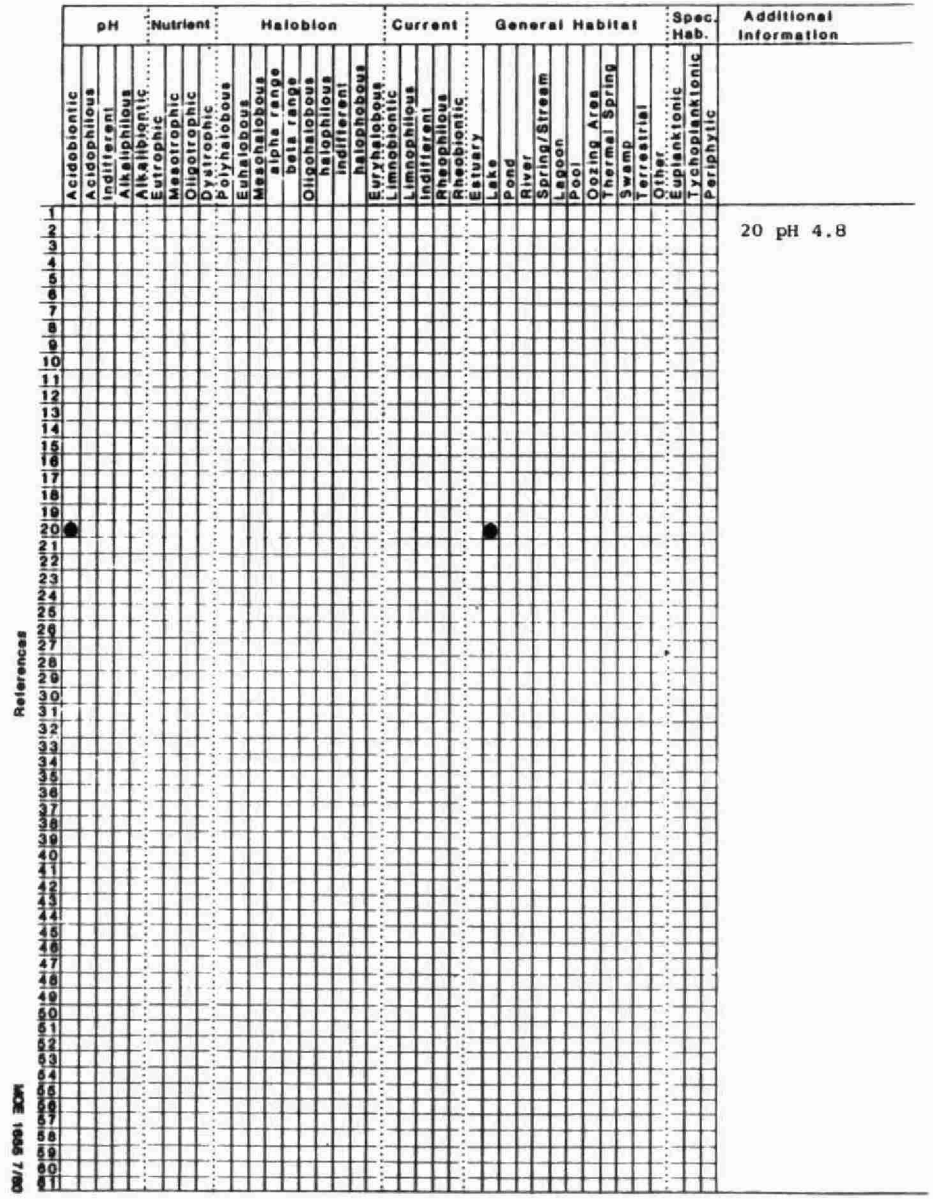


Additional Information

5 metathermal
5,11,25,53 pH range 6-9
5,53 mesotherm. oligothermal
8 pH optimum around 7.5
19 pH 6.5-8.9
20 pH 4.0 +
21 pH 6.6-7.4
23 spring maximum
25,27 cosmopolitar
29 euryoxybiontic
53 eurythermal
56 fall maximur

Taxon Surirella arctissima A. Schmidt

Synonym

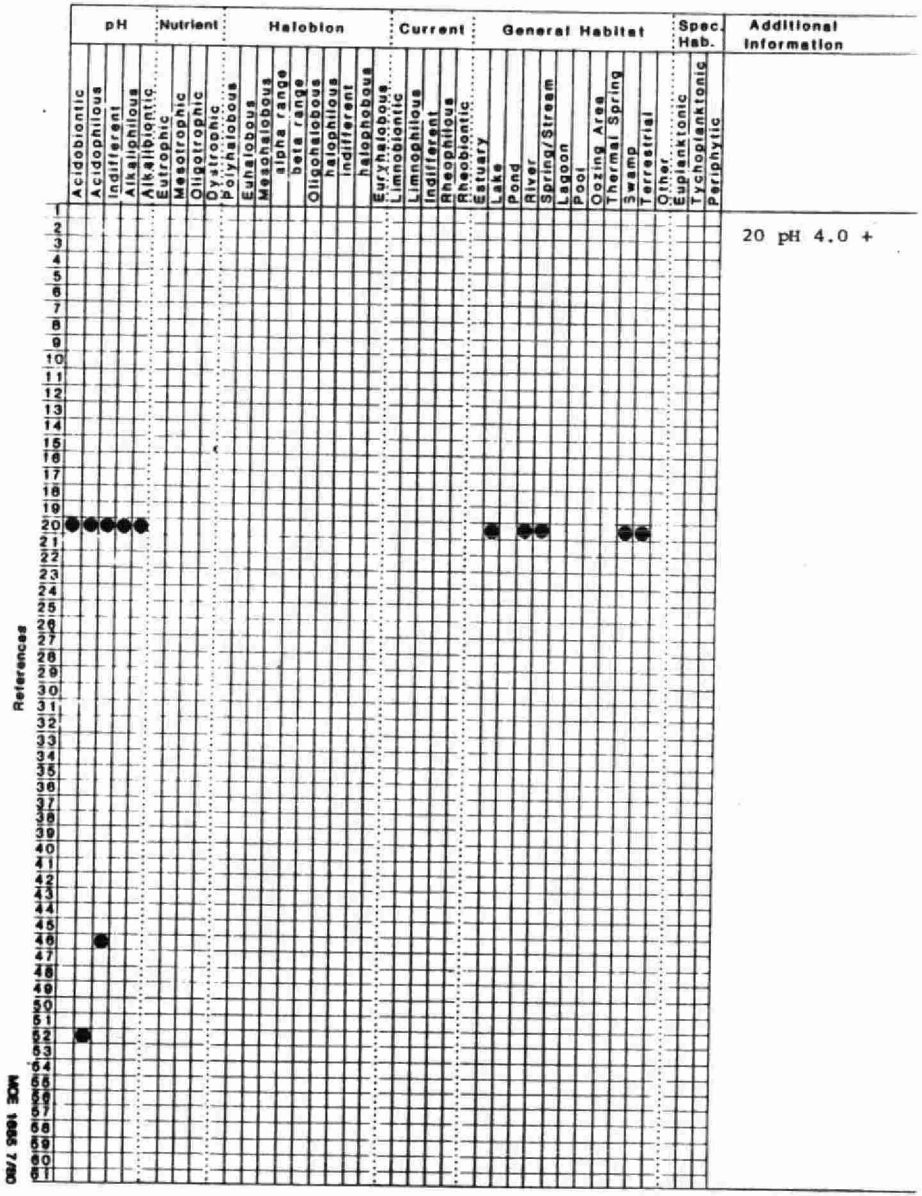


Additional Information

20 pH 4.8

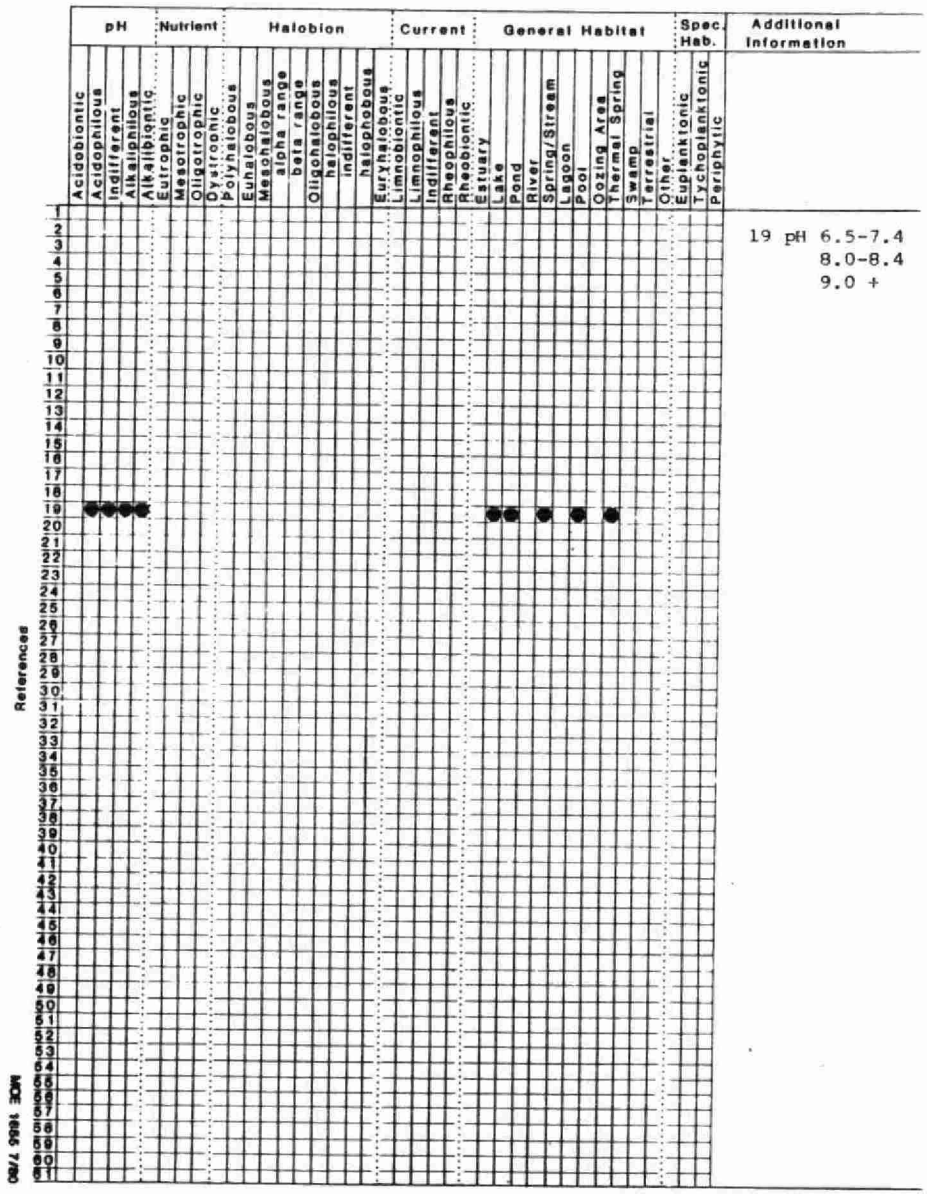
Taxon Surirella birostrata Hust.

Synonym



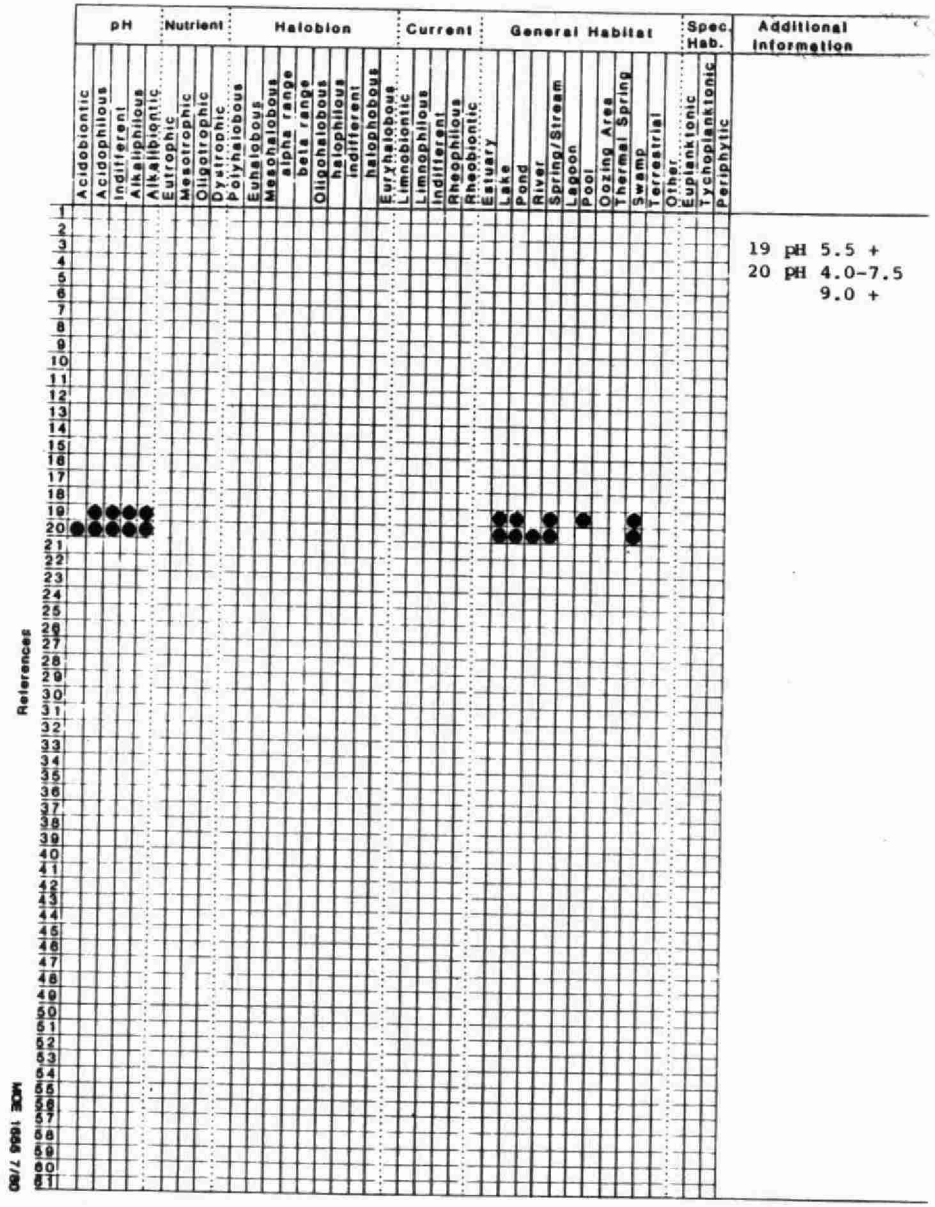
Taxon Surirella biseriata var. bifrons (Ehr.) Hust.

Synonym



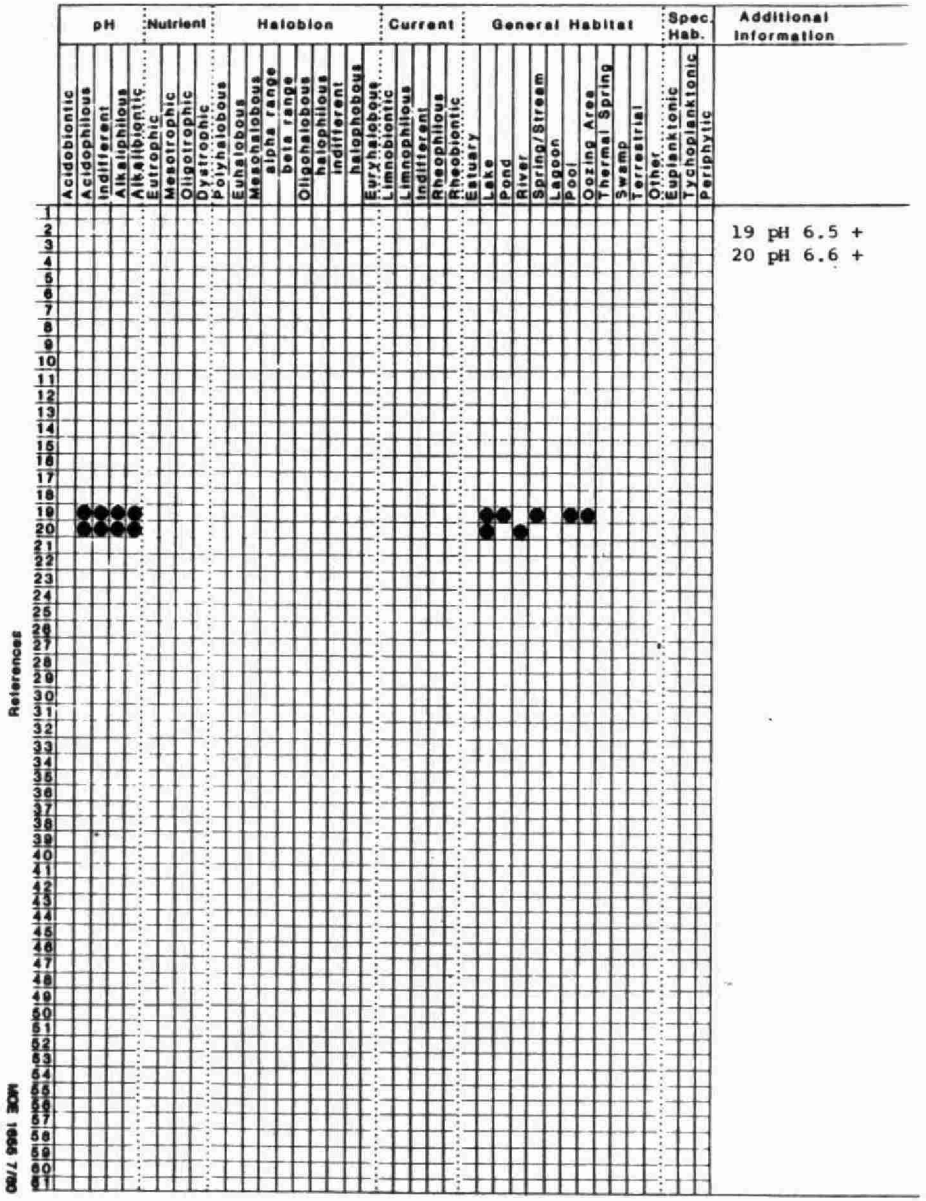
Taxon Surirella biseriata var. bifrons f. amphioxys (W. Sm.) Hust.

Synonym Surirella amphioxys W. Sm.



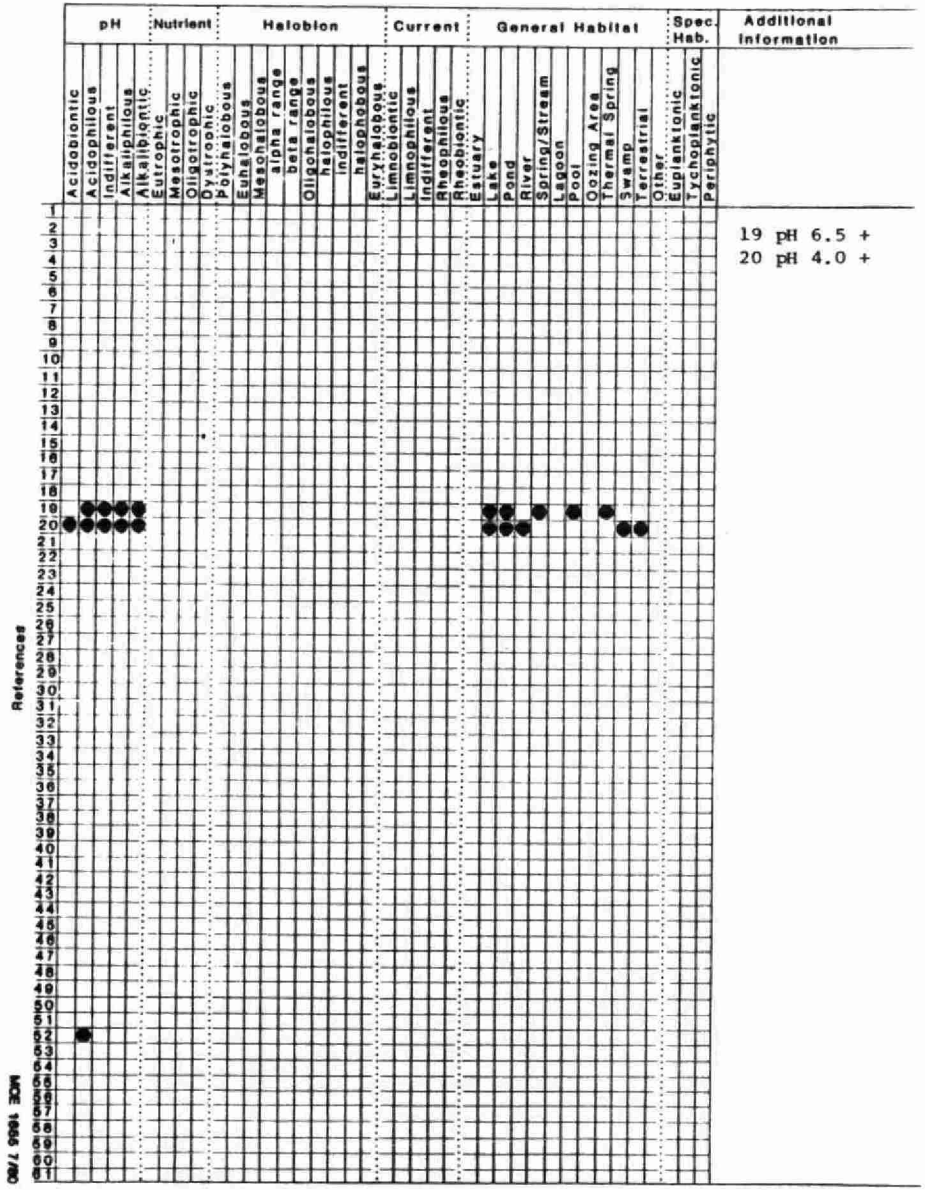
Taxon Surirella biseriata var. bifrons f. punctata Meist.

Synonym



Taxon Surirella biseriata Breb. var. biseriata

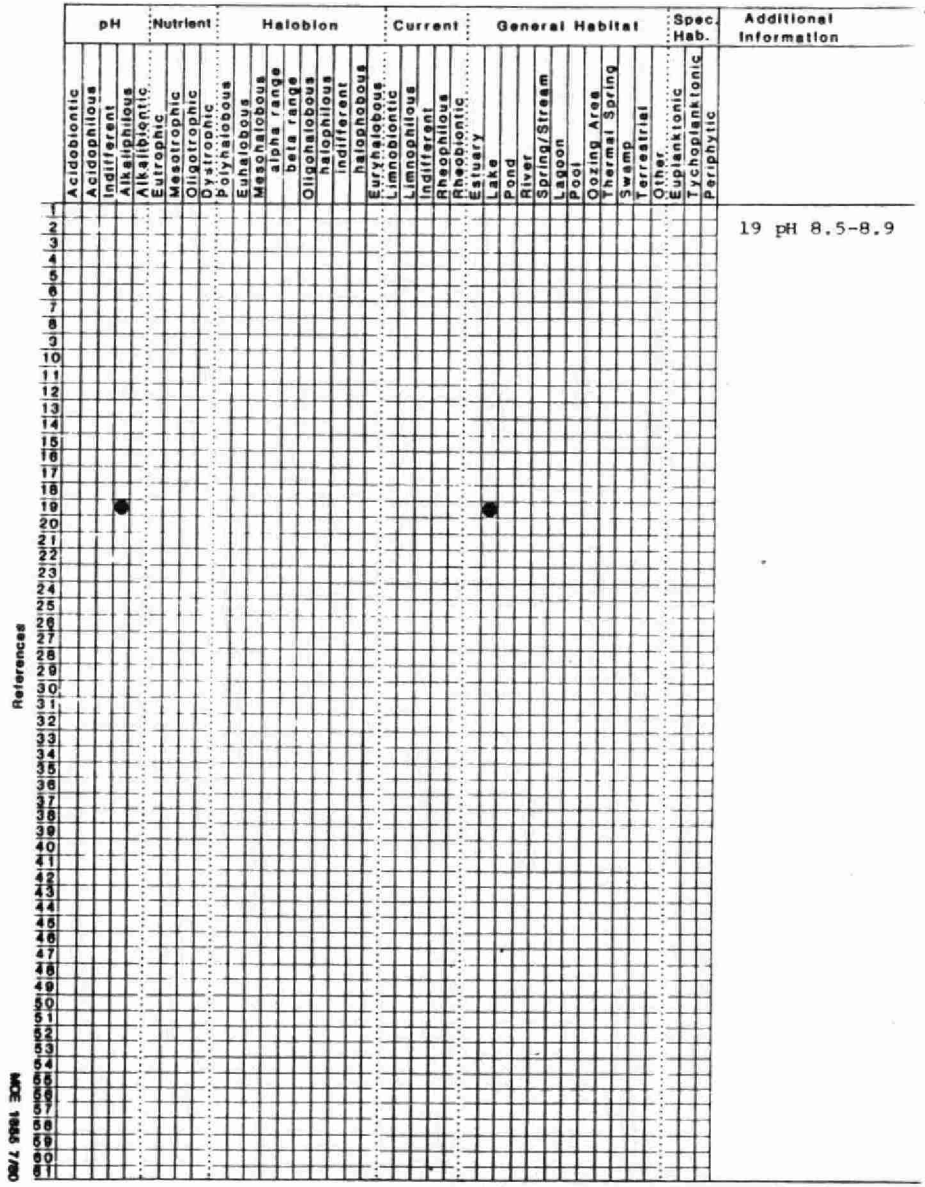
Synonym



19 pH 6.5 +
20 pH 4.0 +

Taxon Surirella biseriata var. constricta Grun.

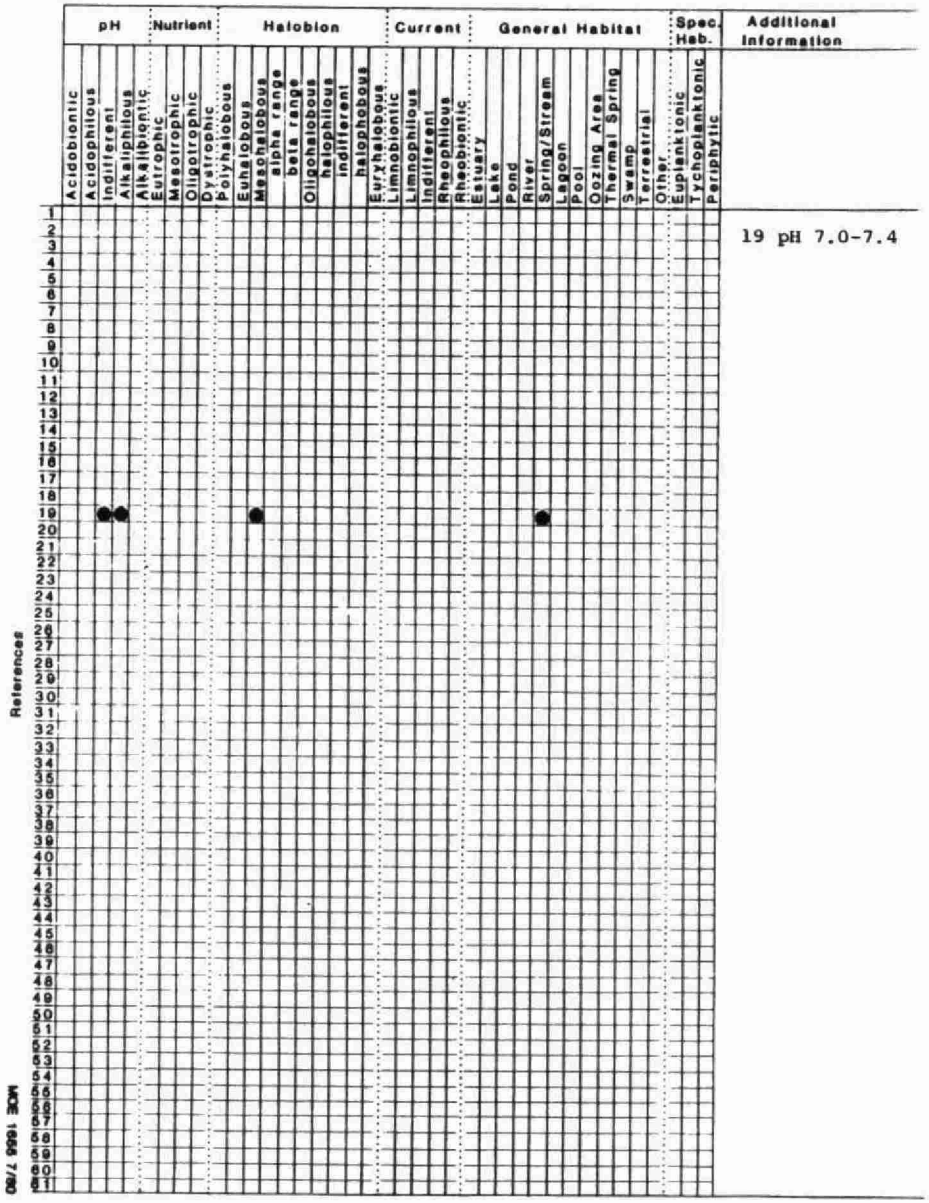
Synonym



19 pH 8.5-8.9

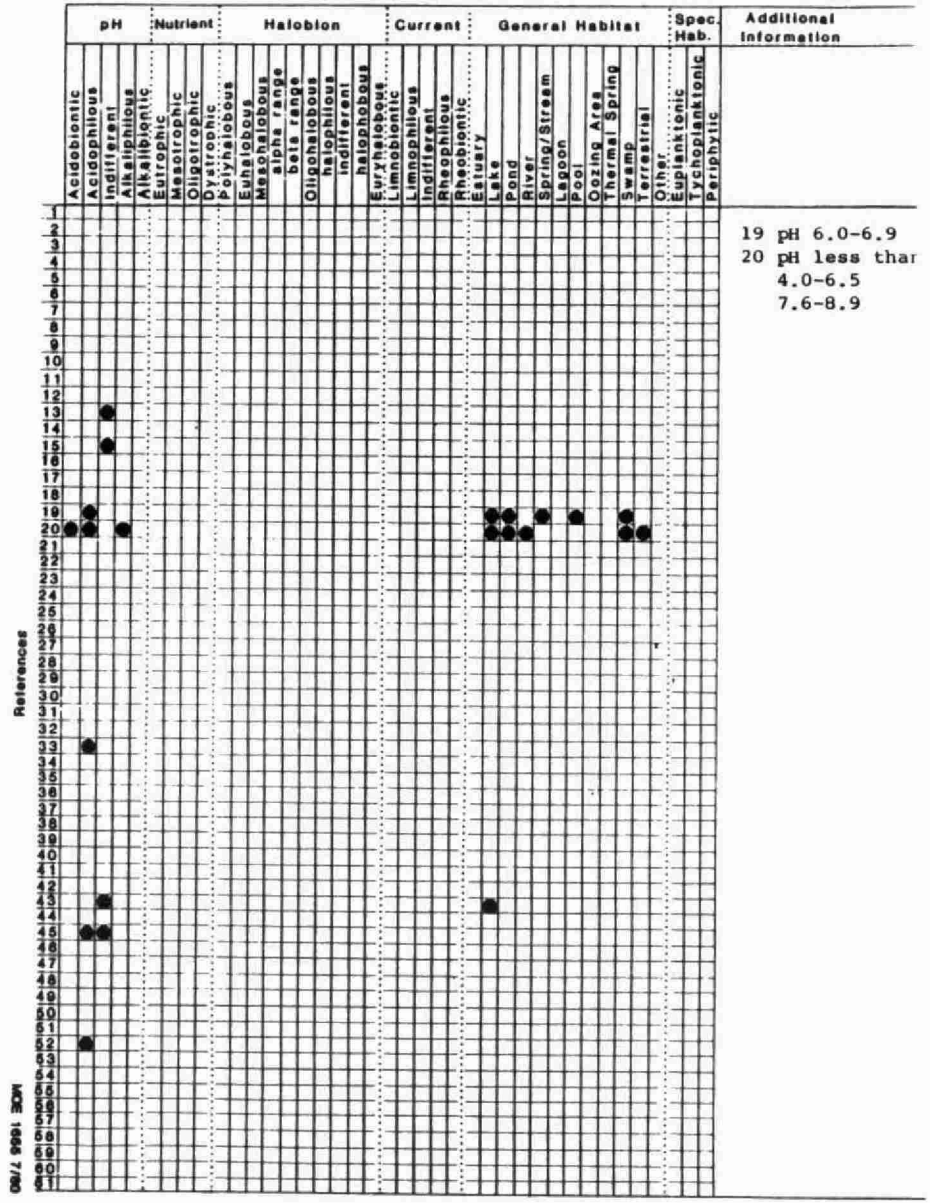
Taxon Surirella brightwellii W. Sm.

Synonym



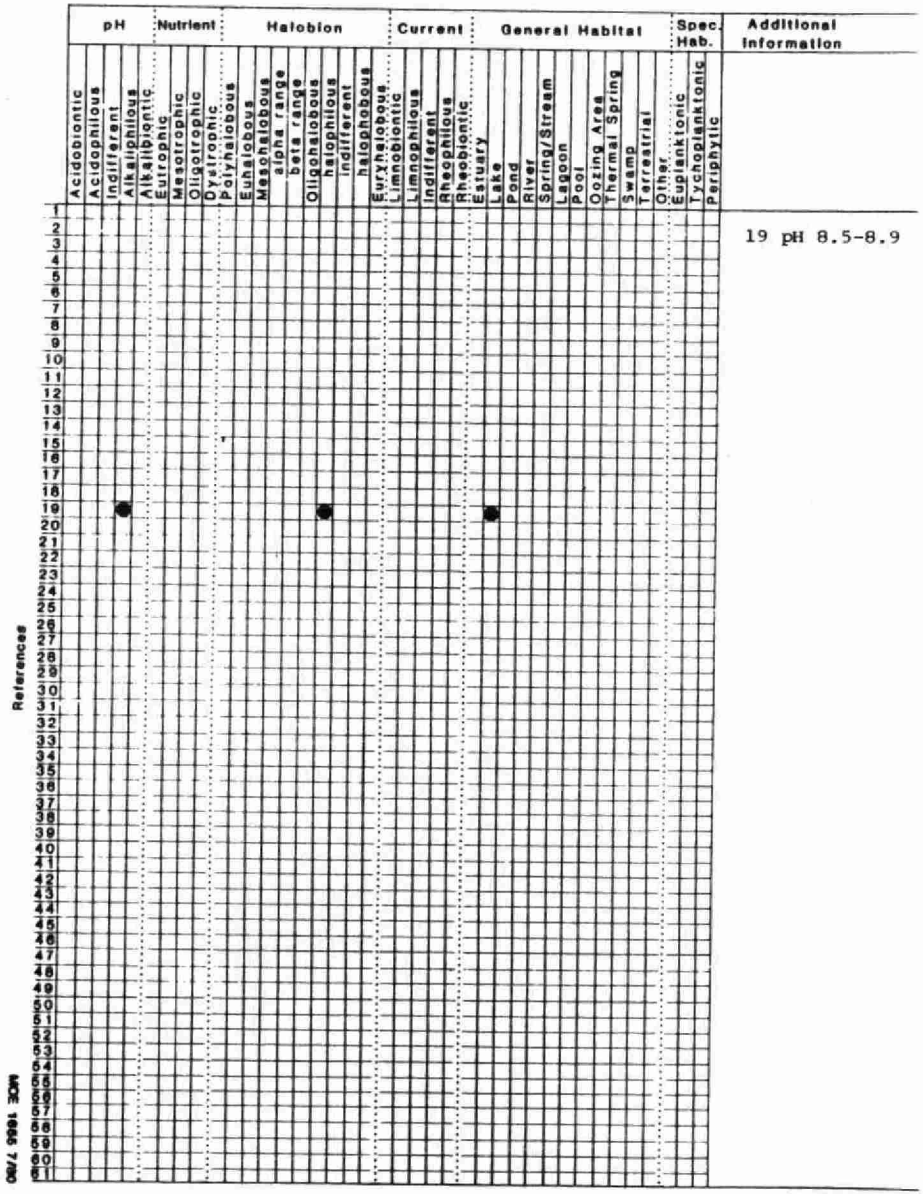
Taxon Surirella delicatissima Lewis

Synonym



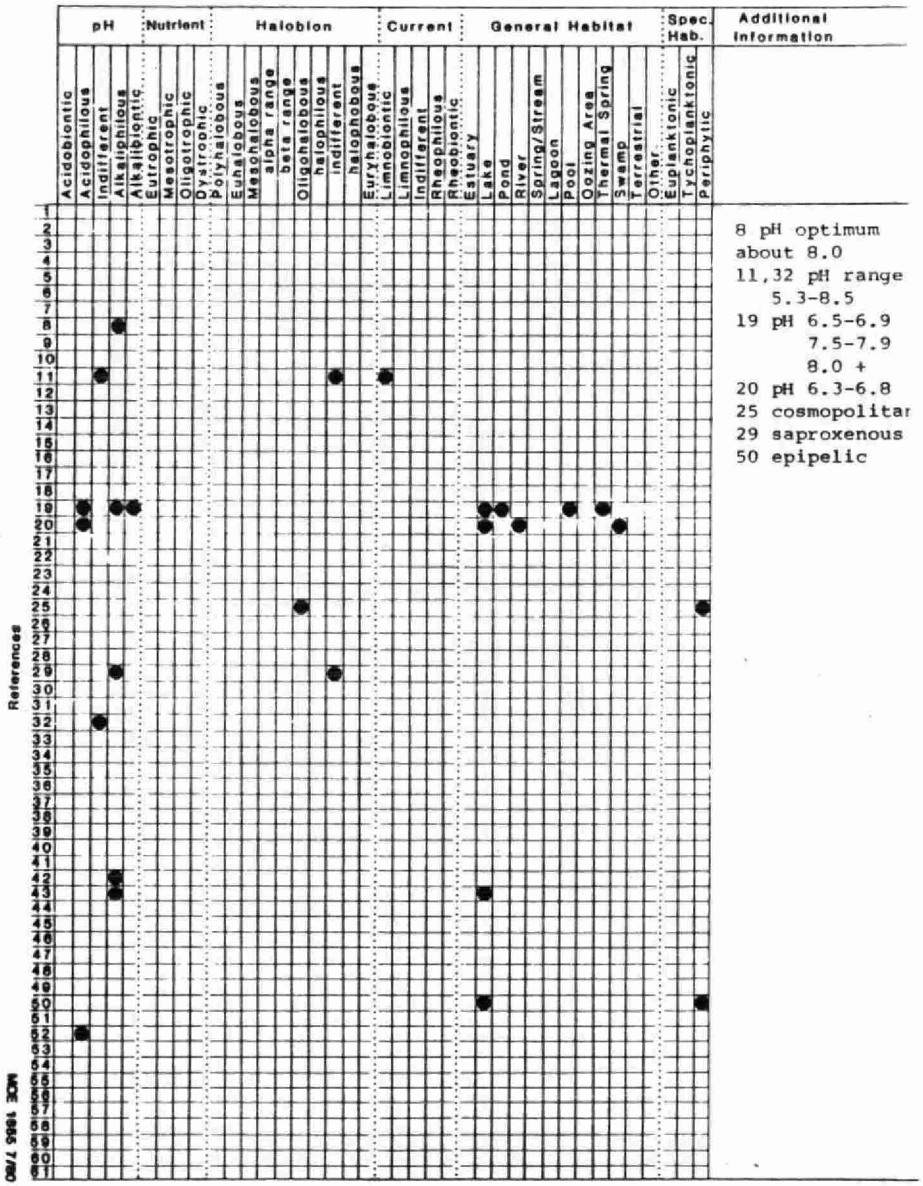
Taxon Surirella didyma Kutz.

Synonym



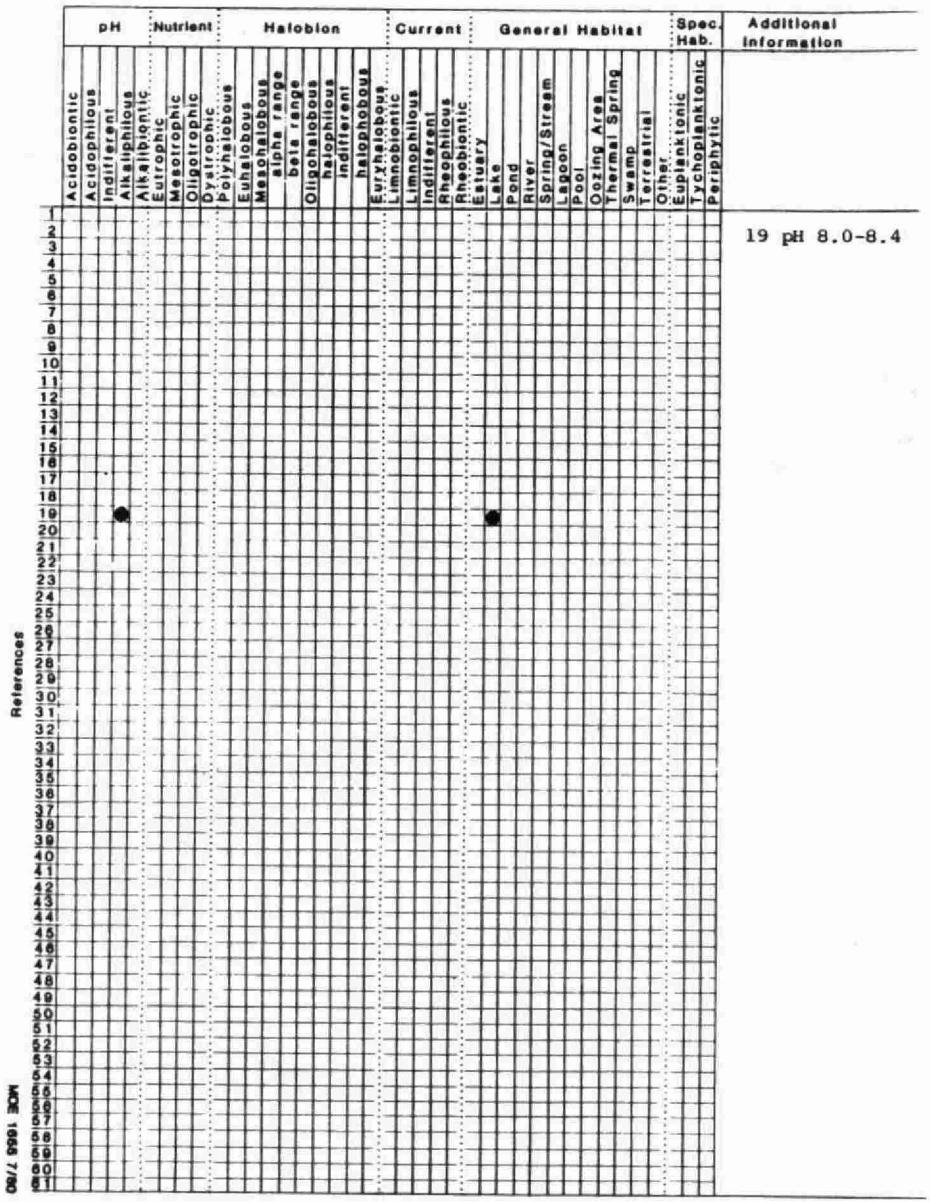
Taxon Surirella elegans Ehr.

Synonym



Taxon Surirella fastuosa Ehr.

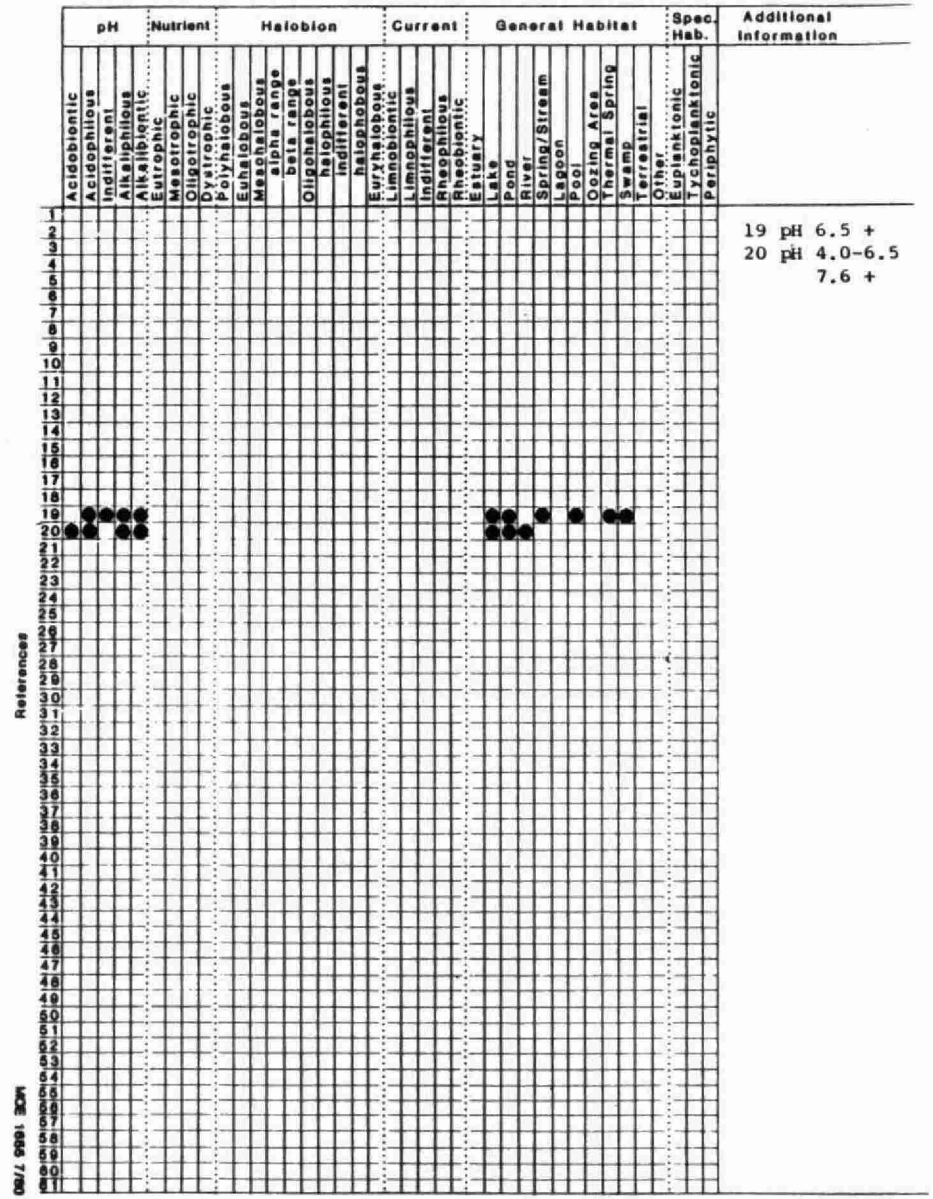
Synonym



19 pH 8.0-8.4

Taxon Surirella gracilis (W. Sm.) Grun.

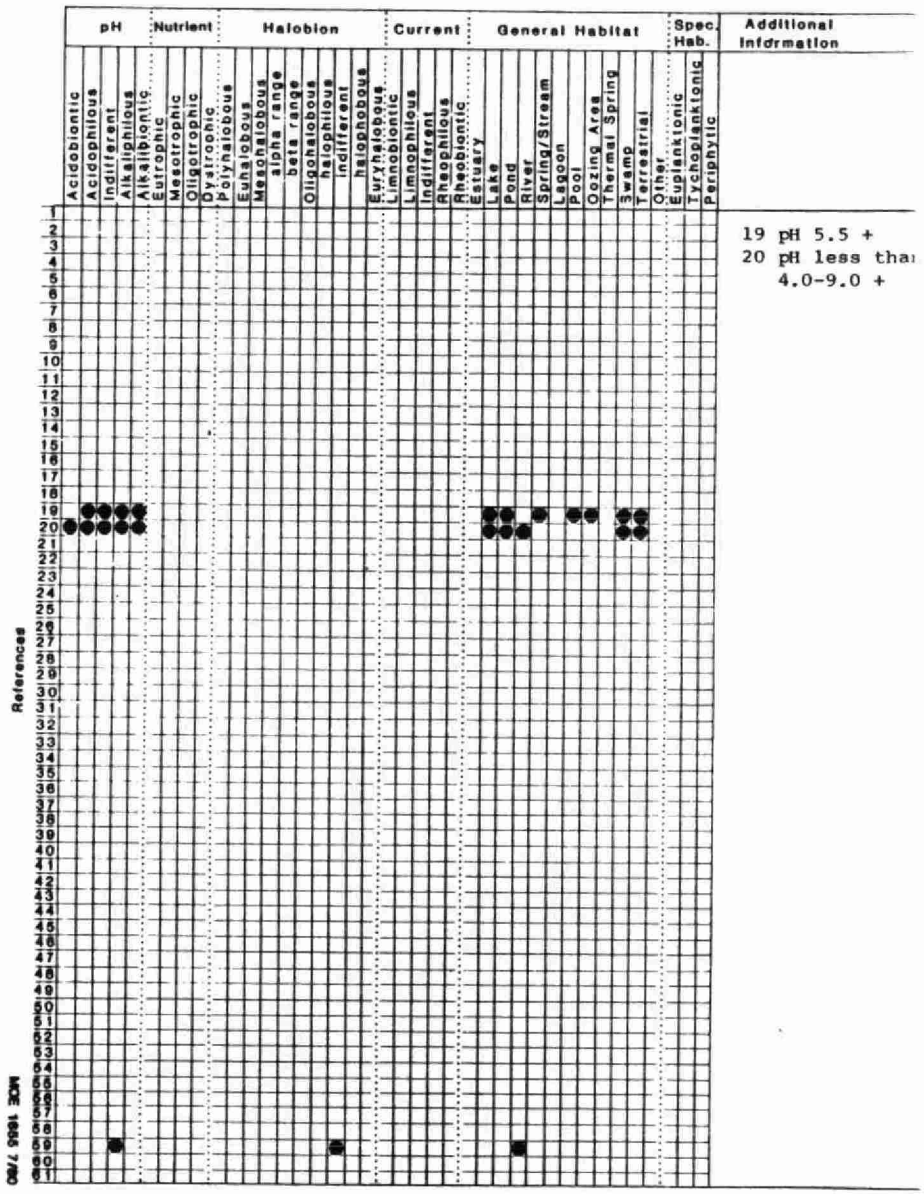
Synonym



19 pH 6.5 +
20 pH 4.0-6.5
7.6 +

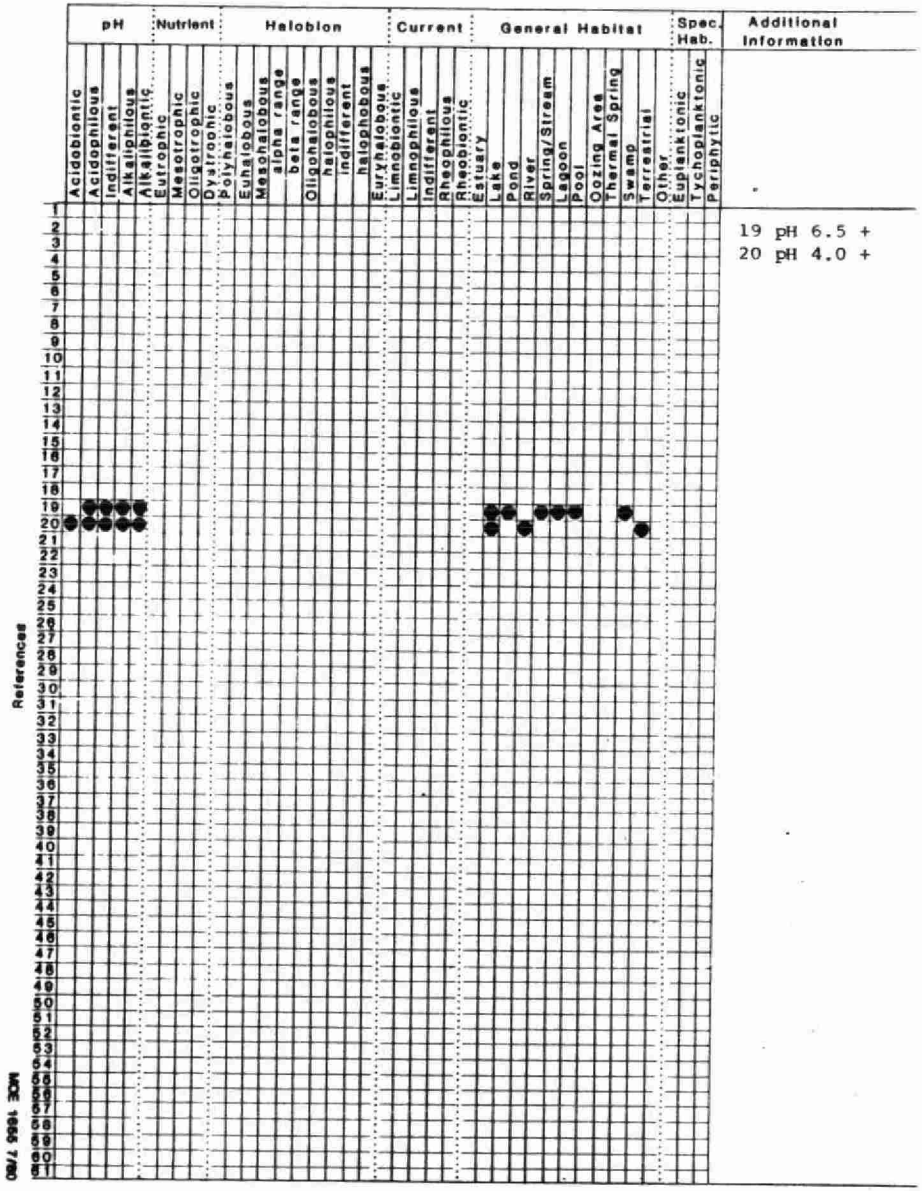
Taxon Surirella linearis var. constricta (Ehr.) Grun.

Synonym



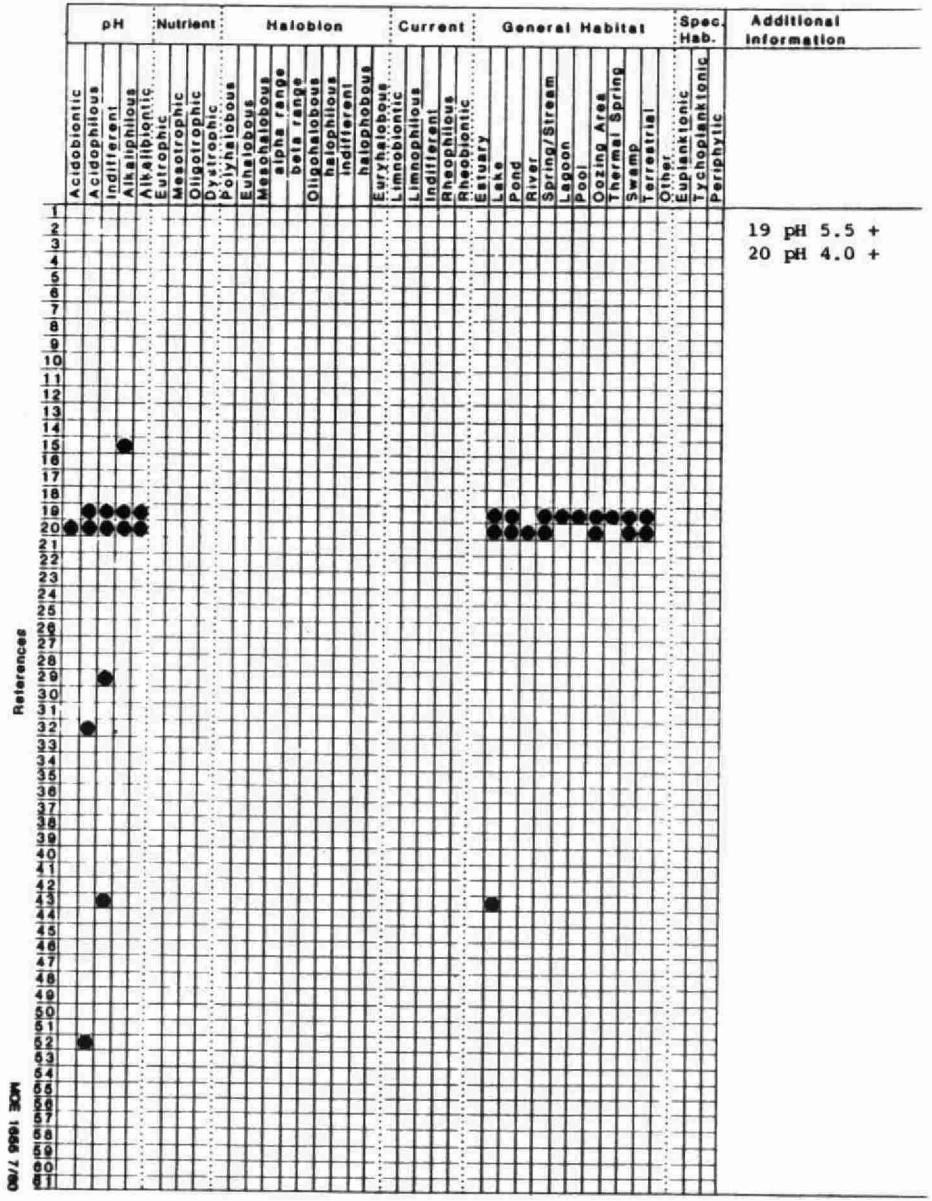
Taxon Surirella linearis var. helvetica (Brun.) Meist.

Synonym



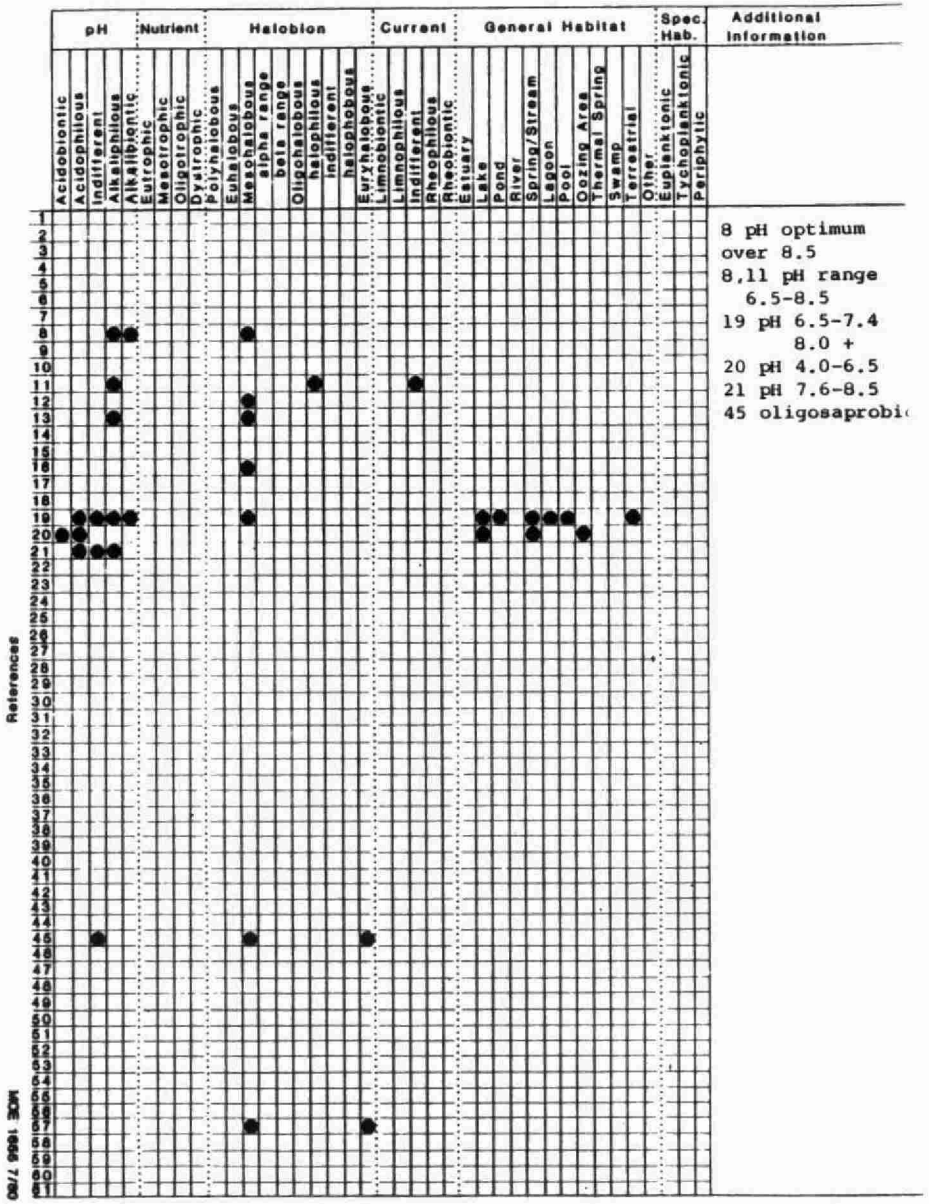
Taxon Surirella linearis W. Sm. var. linearis

Synonym



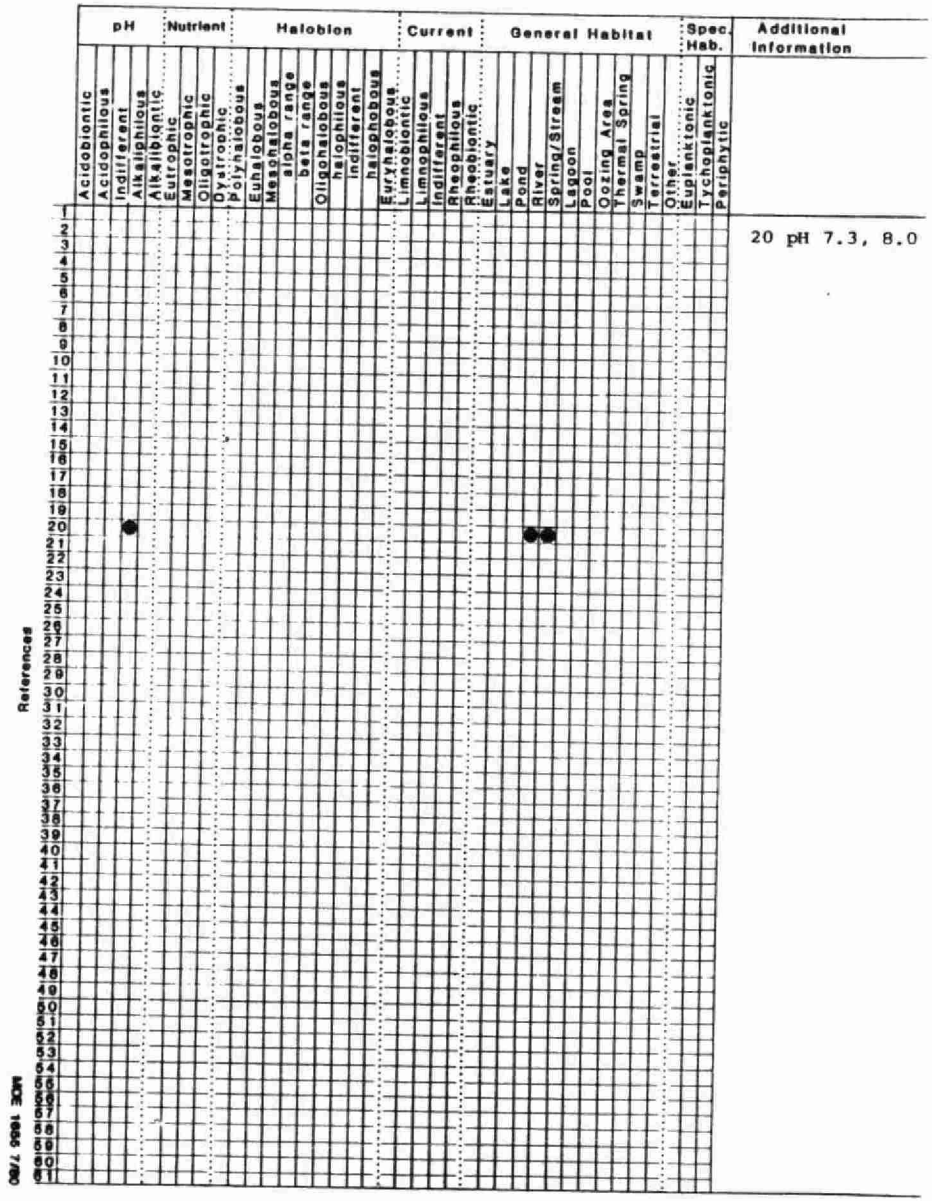
Taxon Surirella ovalis Breb.

Synonym



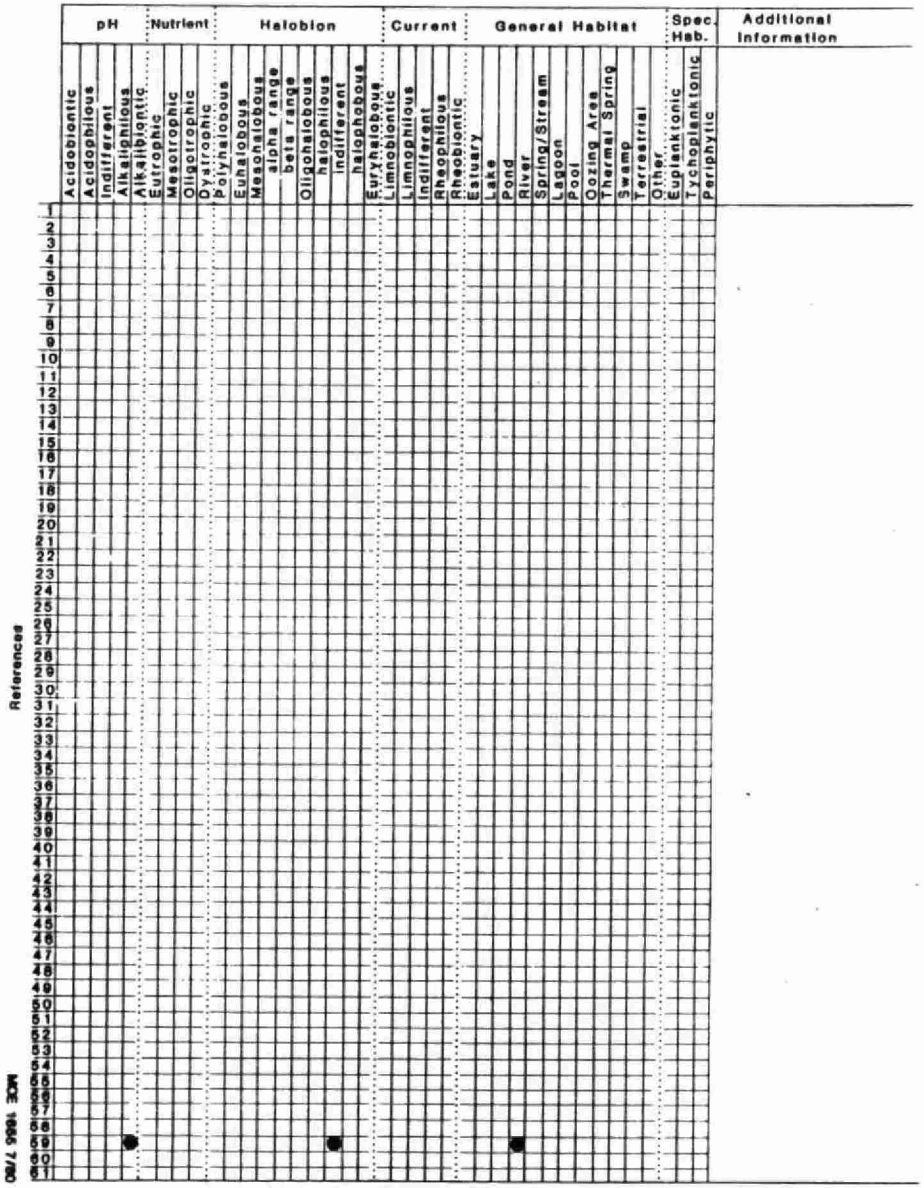
Taxon Surirella ovata var. crumena (Breb.) V.Heurck

Synonym



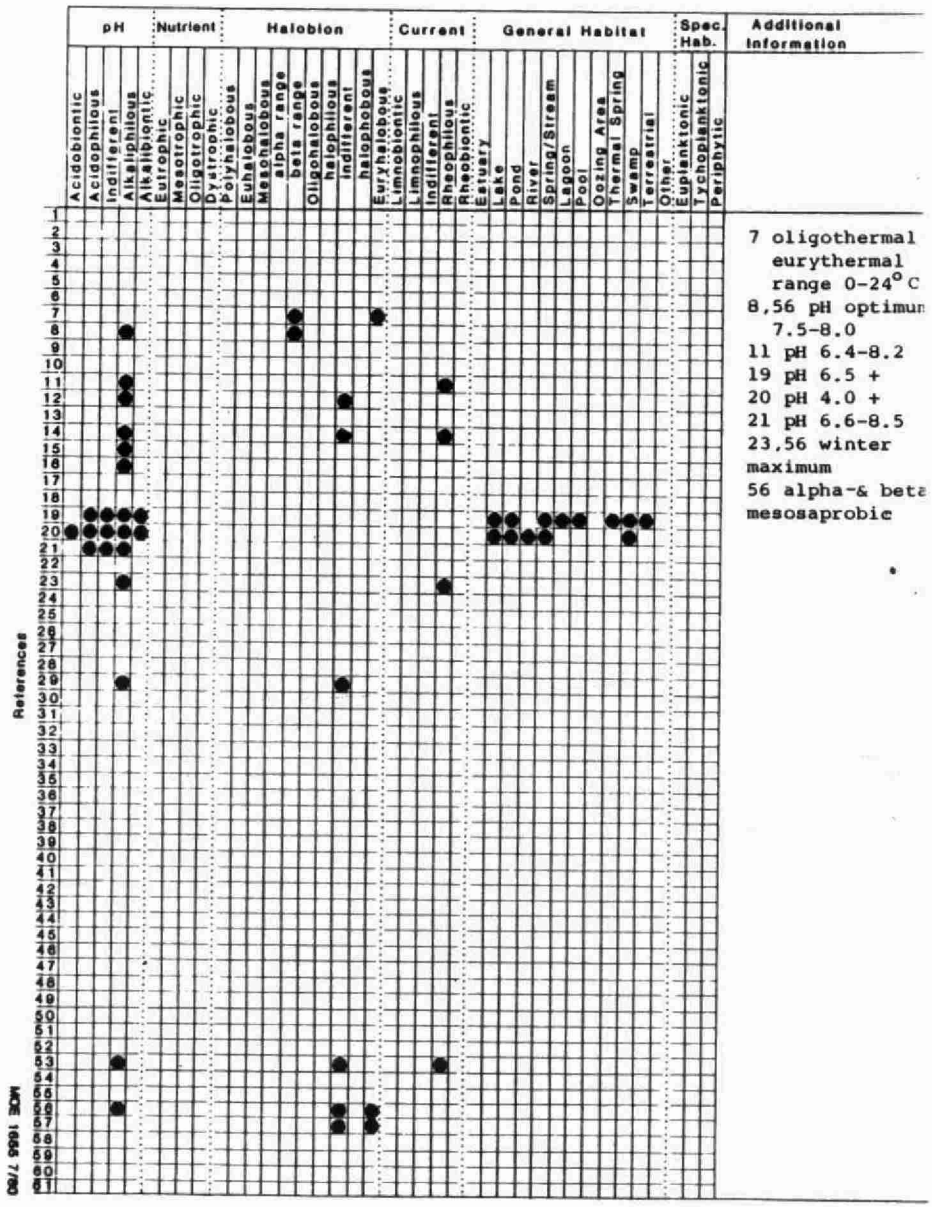
Taxon Surirella ovata var. minuta Breb.

Synonym



Taxon Surirella ovata Kutz. var. ovata

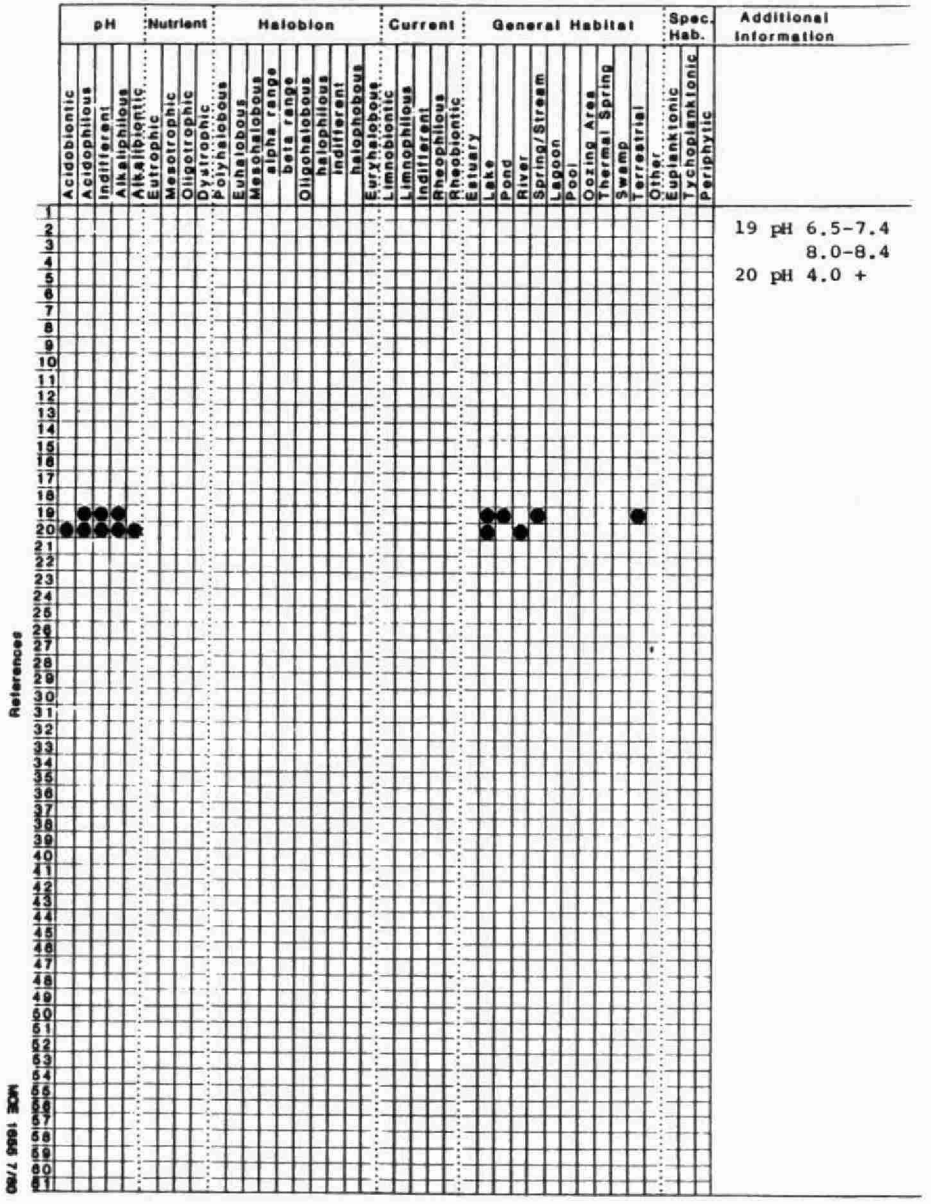
Synonym



7 oligothermal eurythermal range 0-24° C
8,56 pH optimun 7.5-8.0
11 pH 6.4-8.2
19 pH 6.5 +
20 pH 4.0 +
21 pH 6.6-8.5
23,56 winter maximum
56 alpha-& beta mesosaprobic

Taxon Surirella ovata var. pinnata (W. Sm.) Hust.

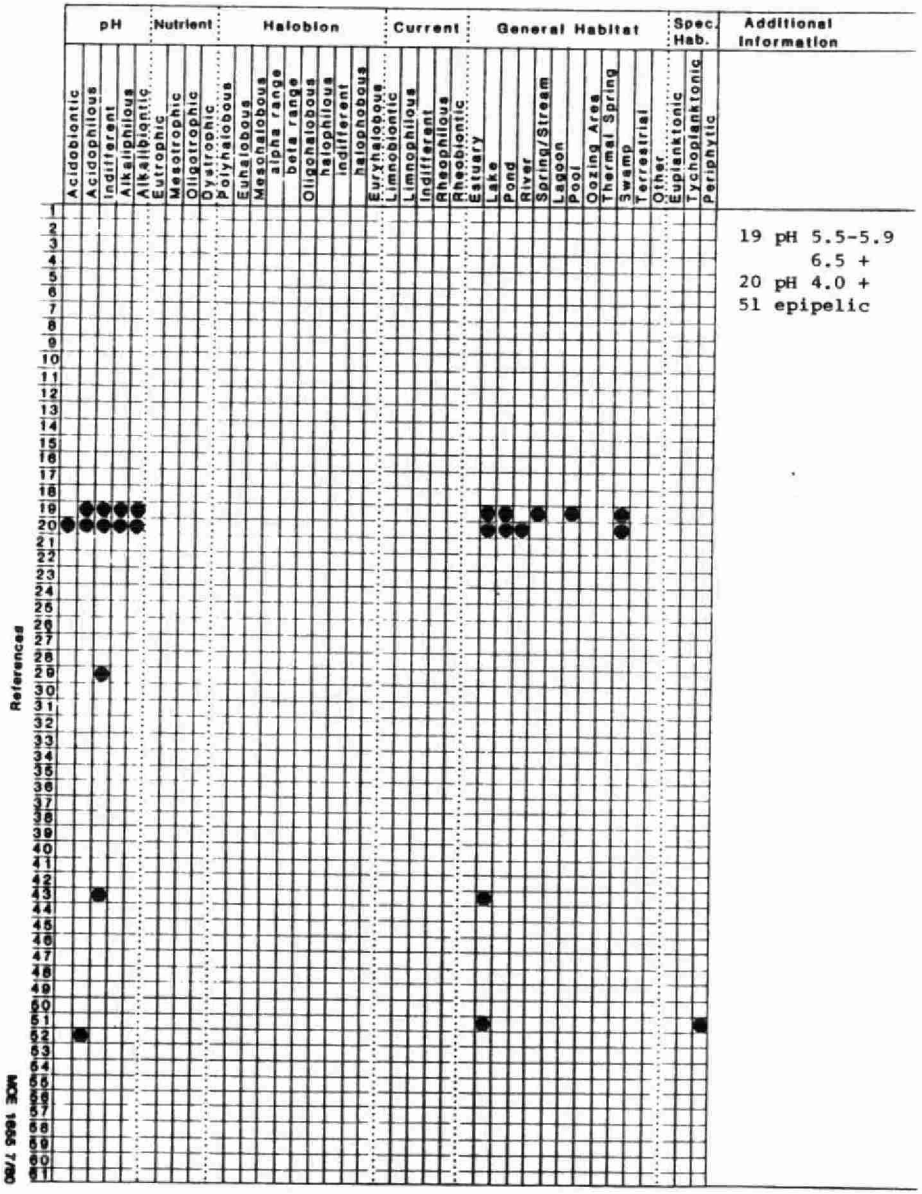
Synonym



19 pH 6.5-7.4
8.0-8.4
20 pH 4.0 +

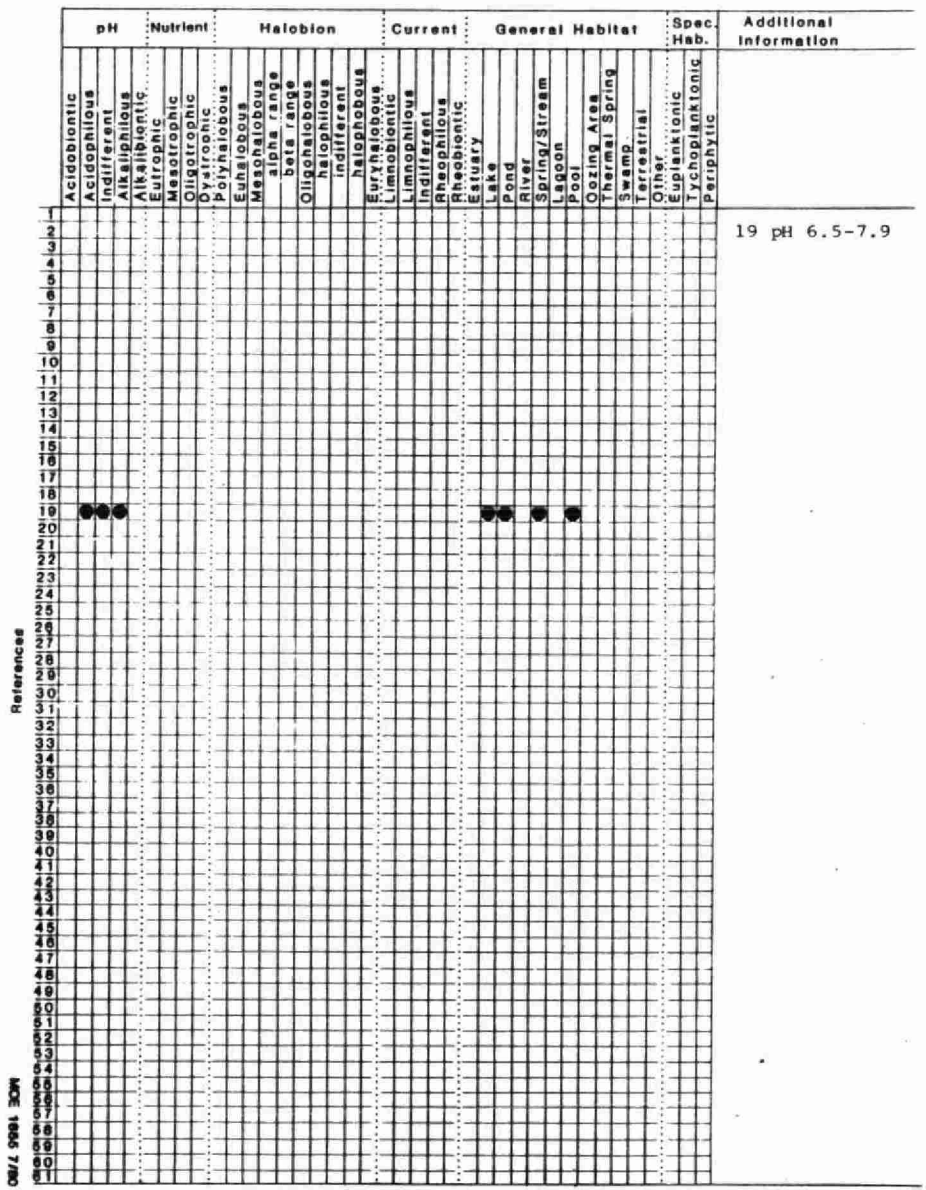
Taxon Surirella robusta (Ehr.) var. robusta

Synonym



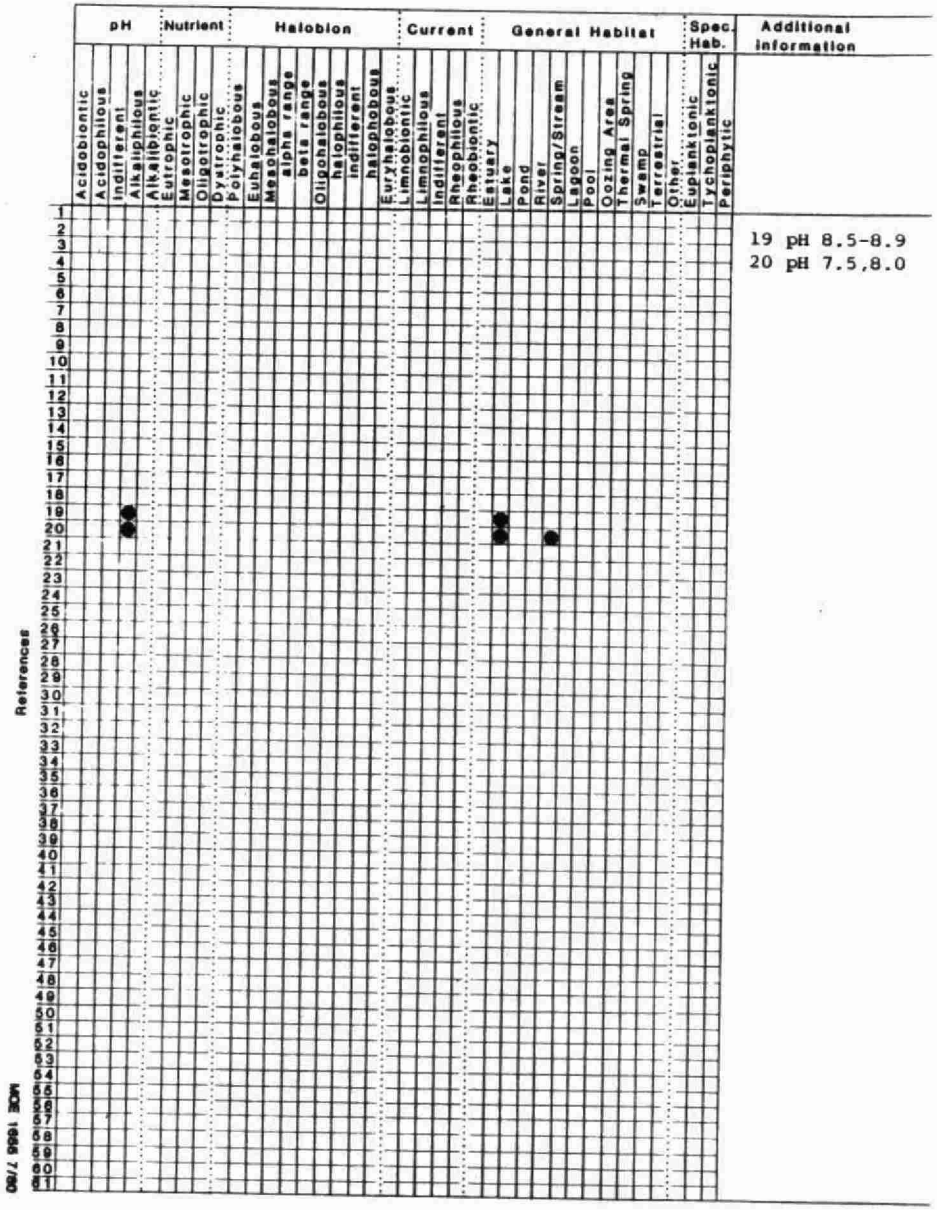
Taxon Surirella robusta var. splendida (Ehr.) V.Heurck

Synonym



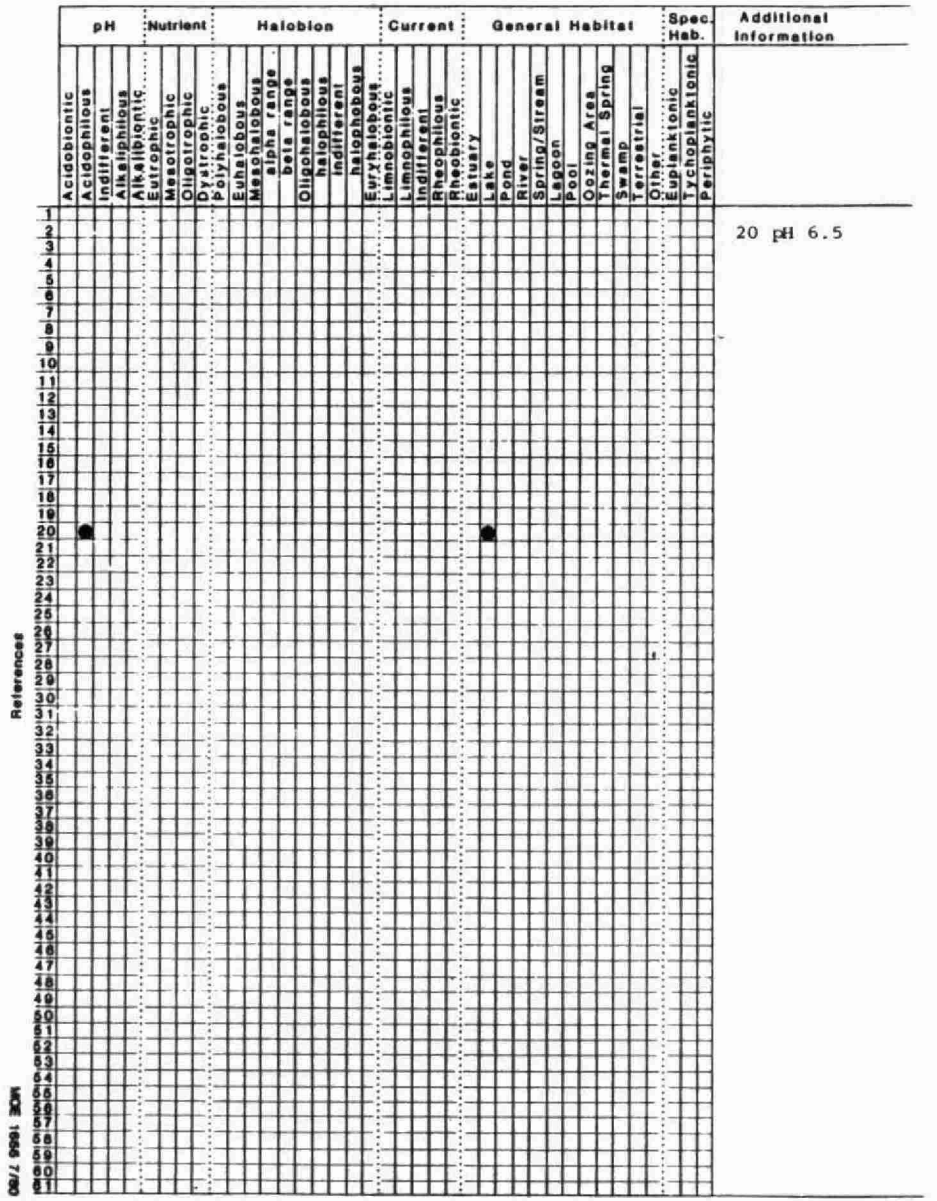
Taxon Surirella robusta var. splendida f. punctata Hust.

Synonym



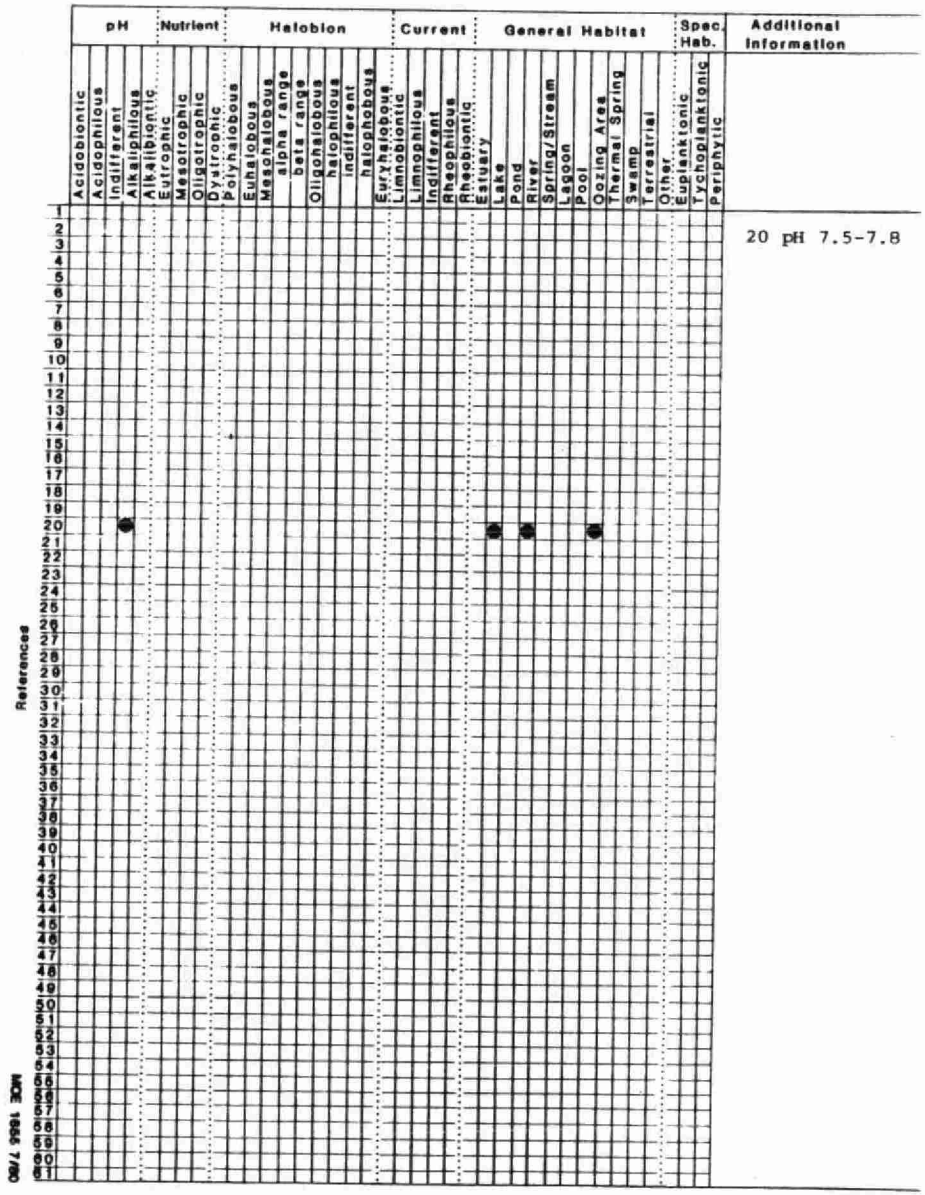
Taxon Surirella simplex var. intermedia Cl.-Eul.

Synonym



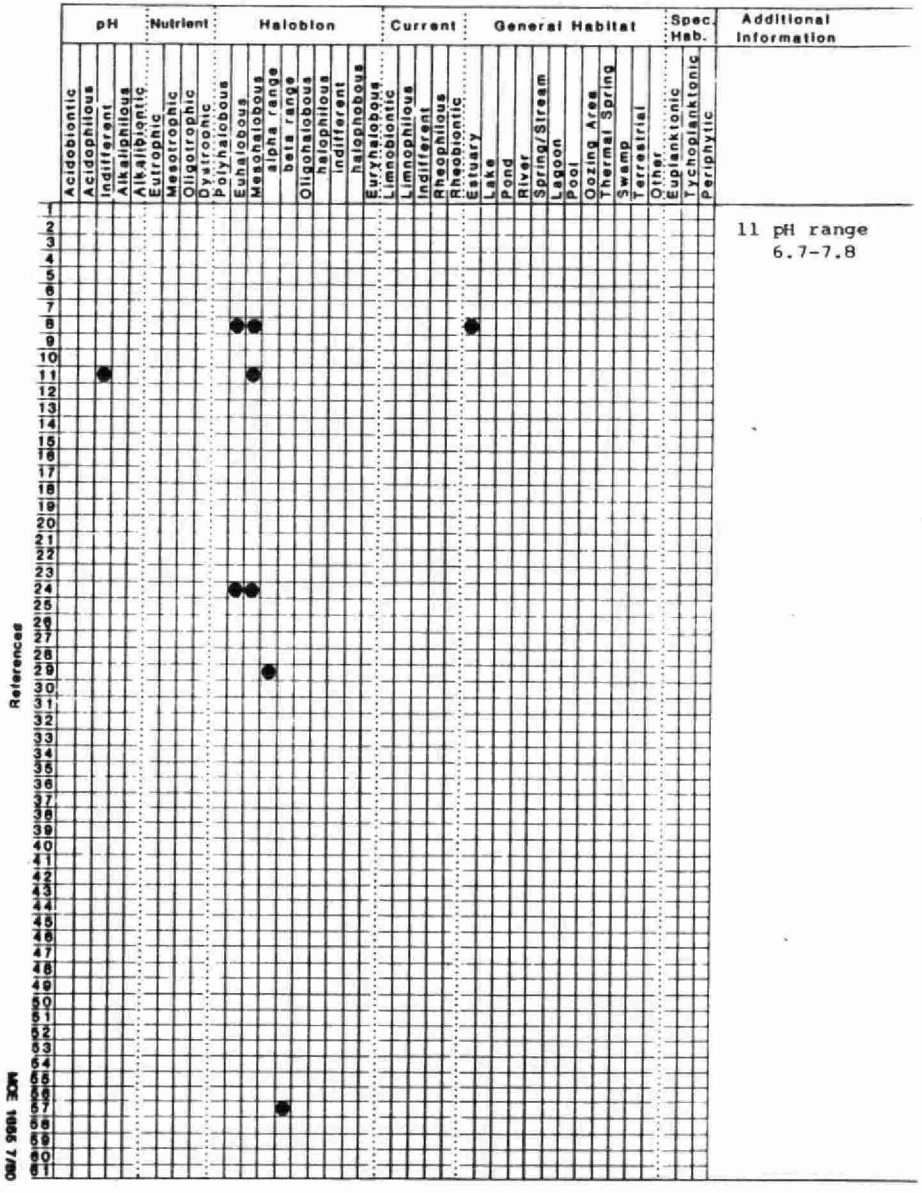
Taxon Surirella spiralis Kutz.

Synonym



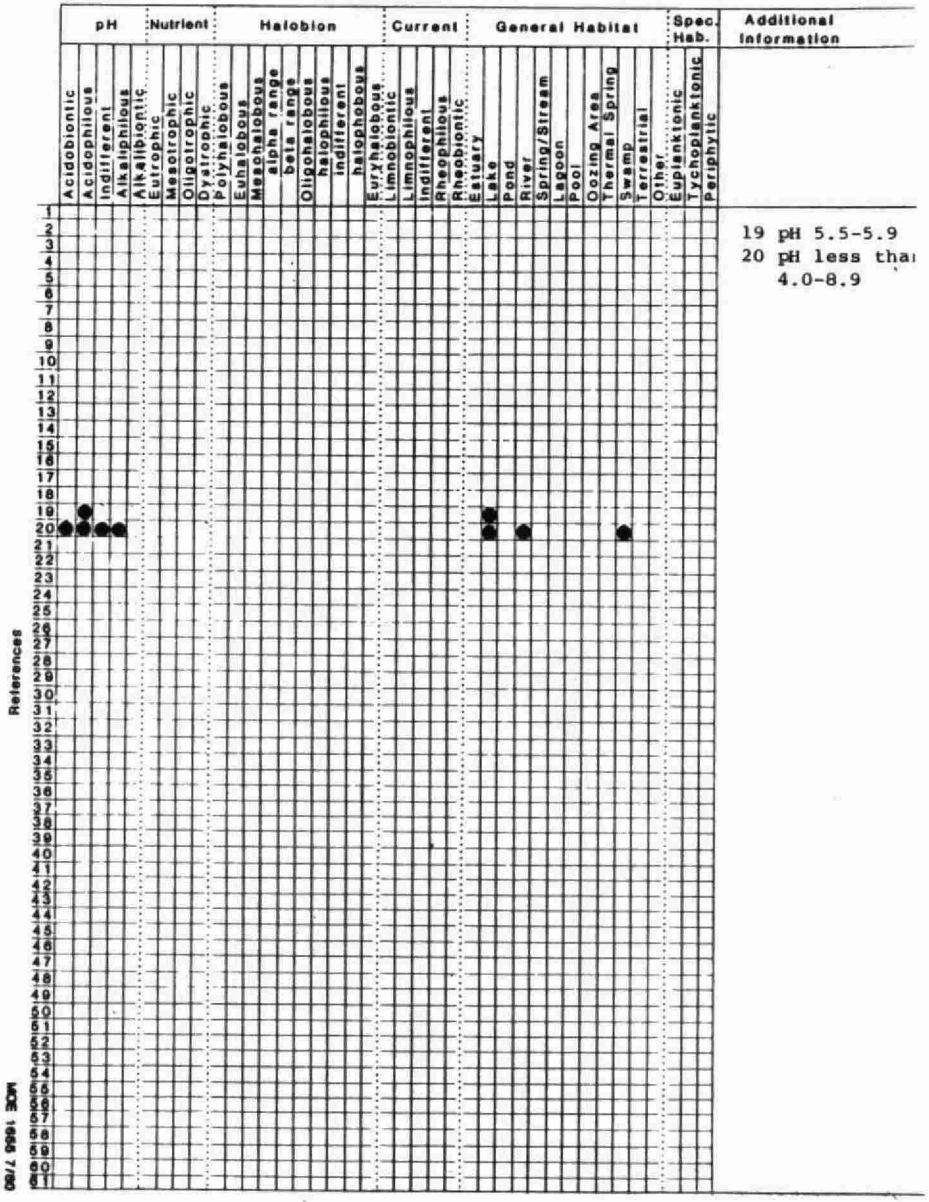
Taxon Surirella striatula Turp.

Synonym



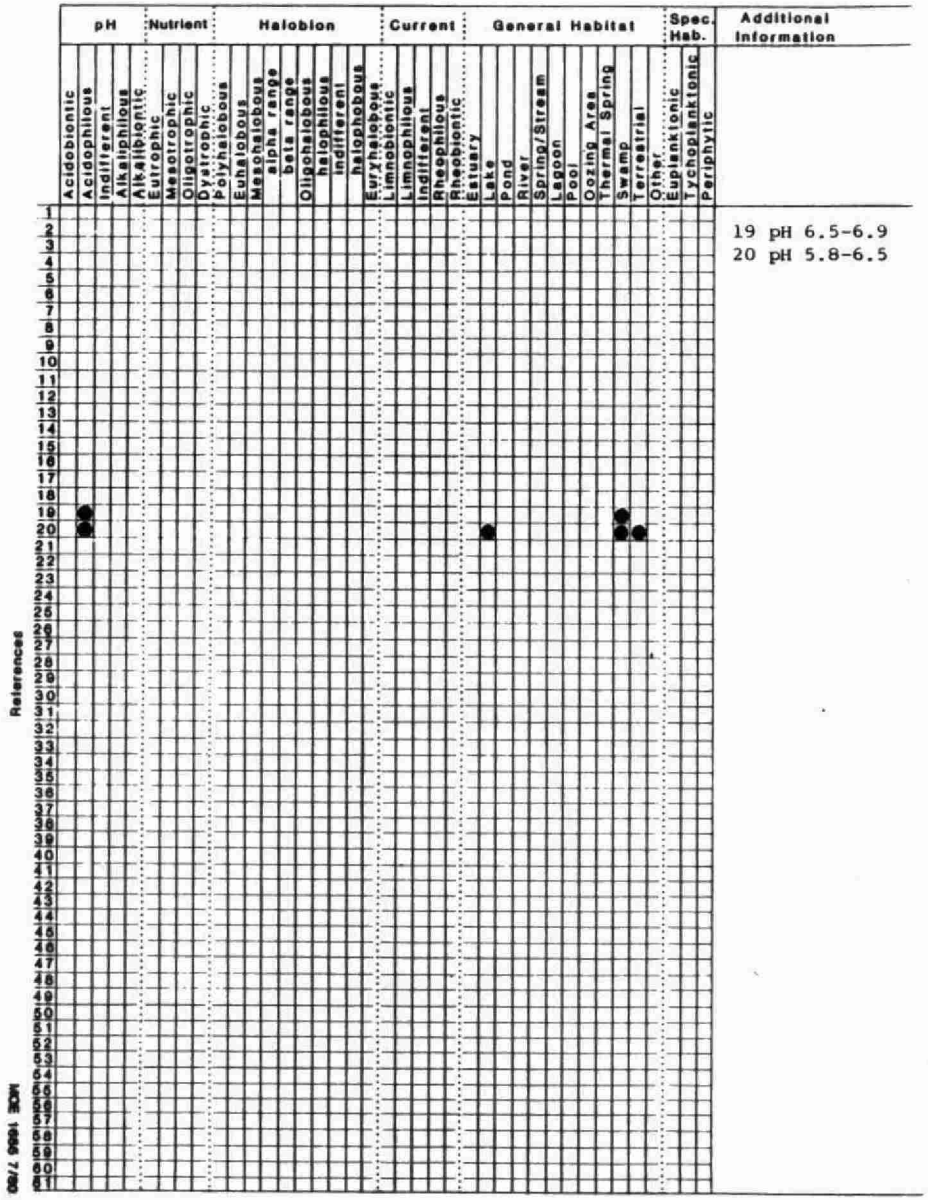
Taxon Surirella tenera var. nervosa A. Schmidt

Synonym



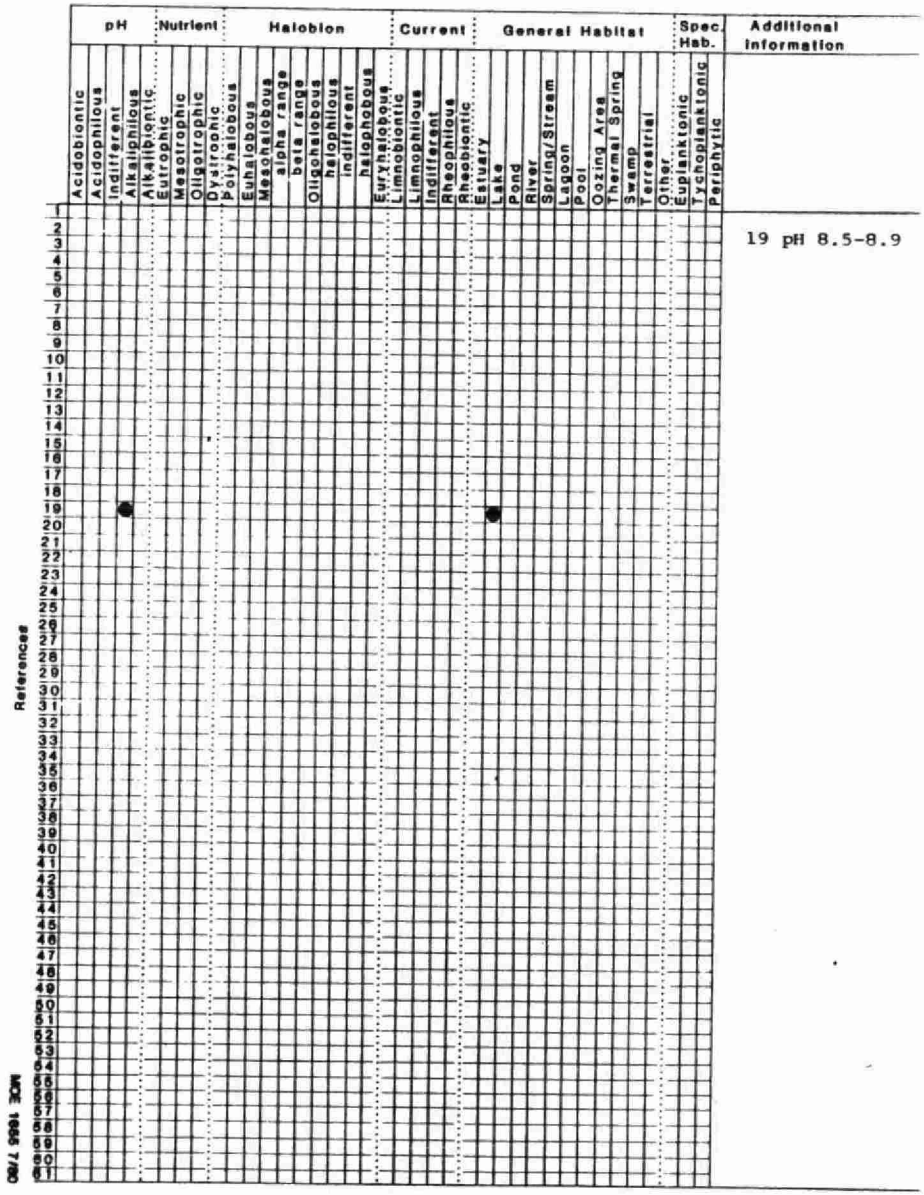
Taxon Surirella tenera Greg. var. tenera

Synonym



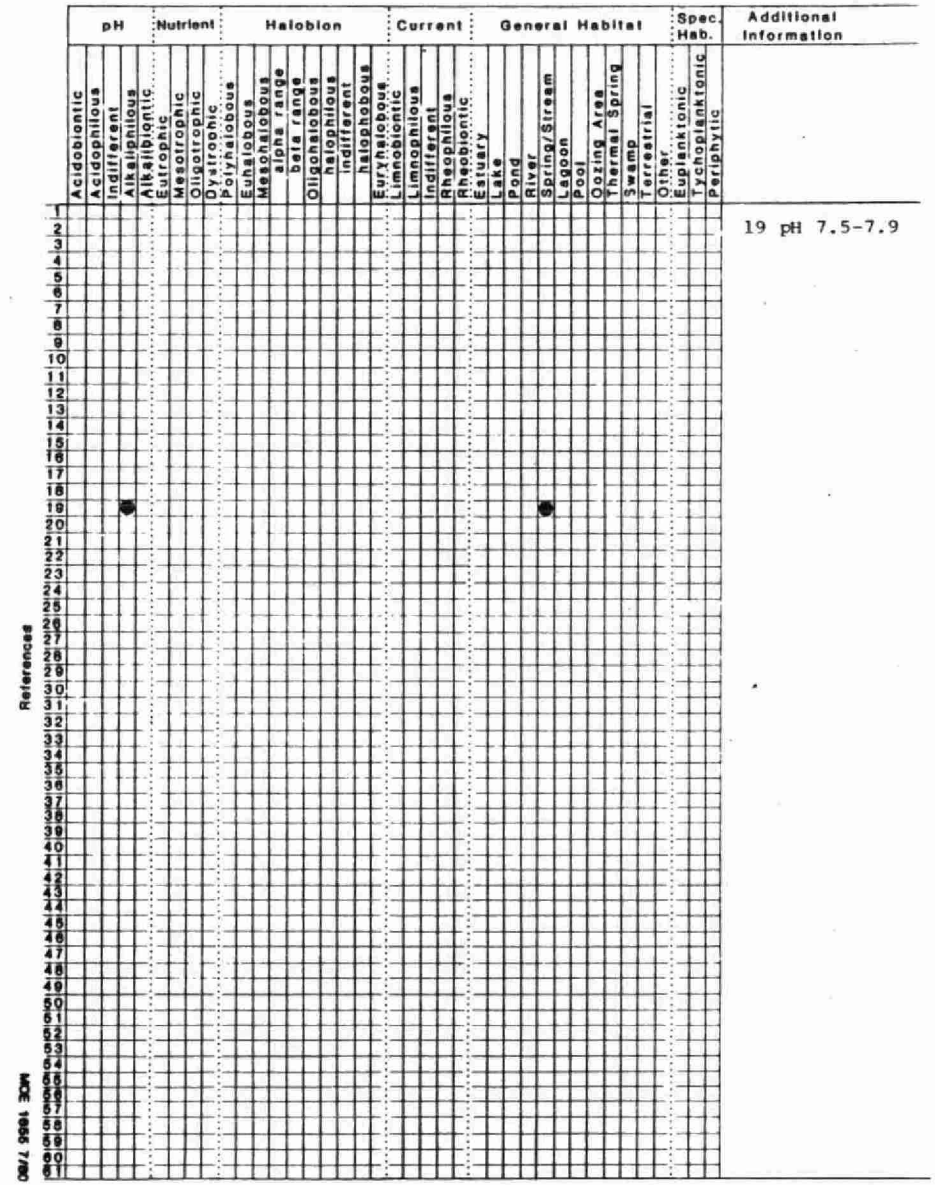
Taxon Surirella terryi var. arctica Patr.& Freese

Synonym



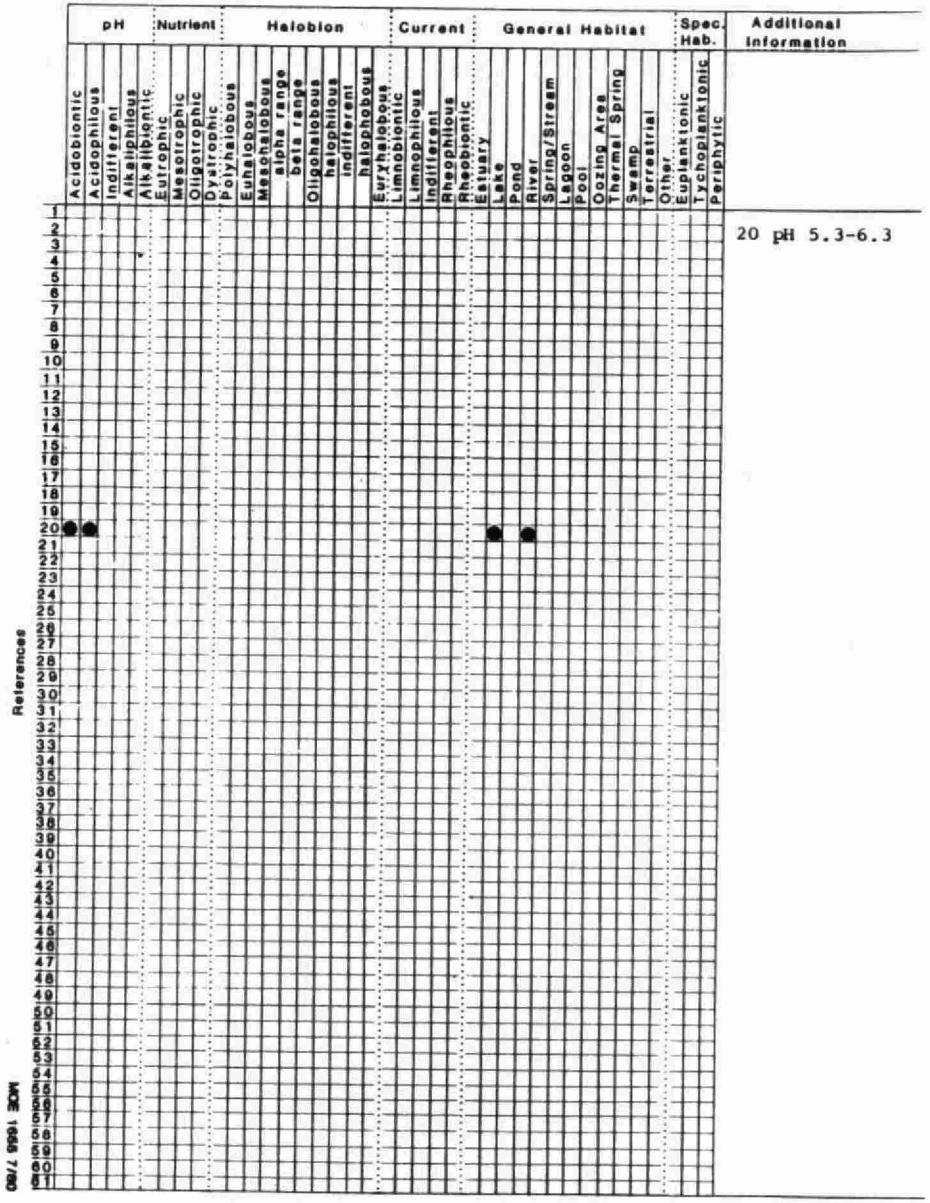
Taxon Surirella turgida f. obtusa Foged

Synonym



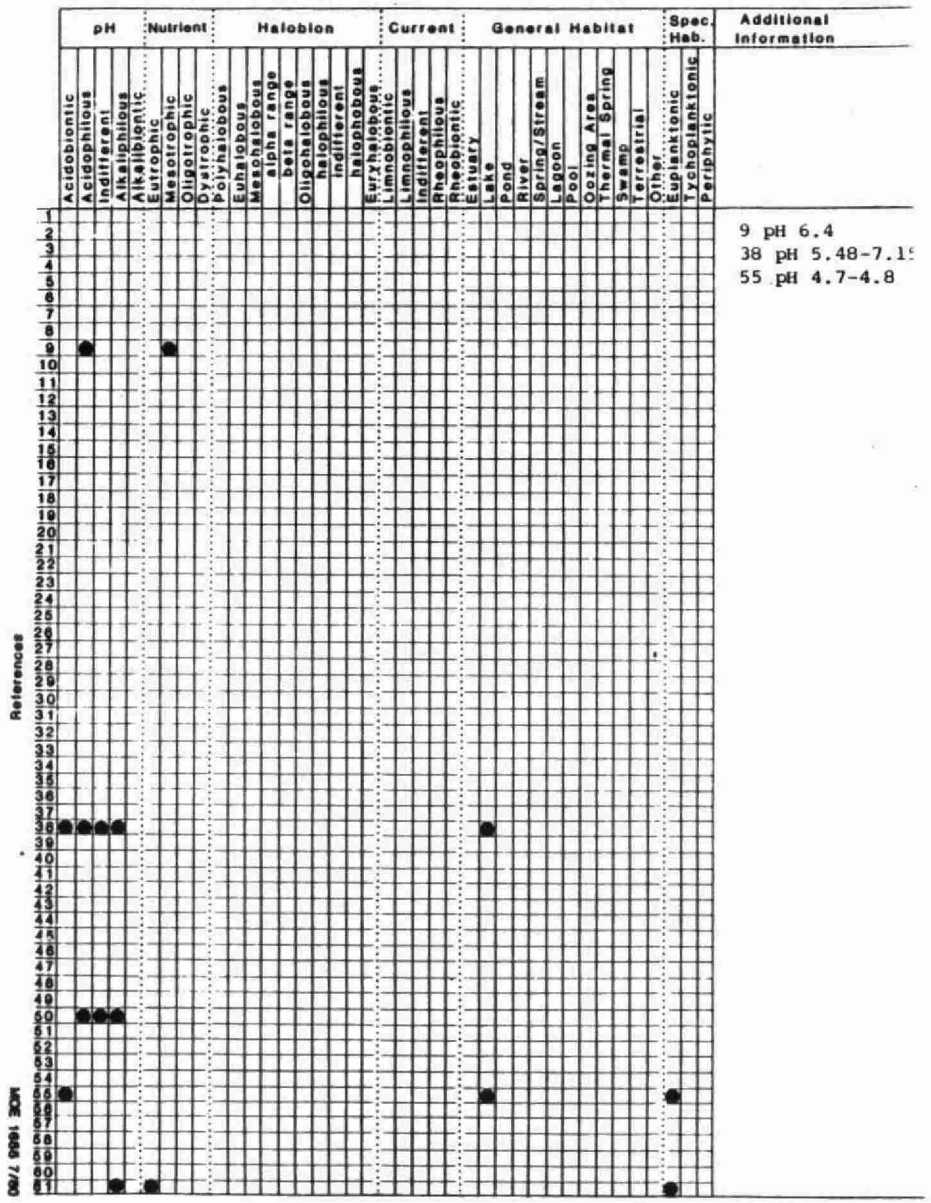
Taxon Surirella variabilis var. cuneata Cl.

Synonym



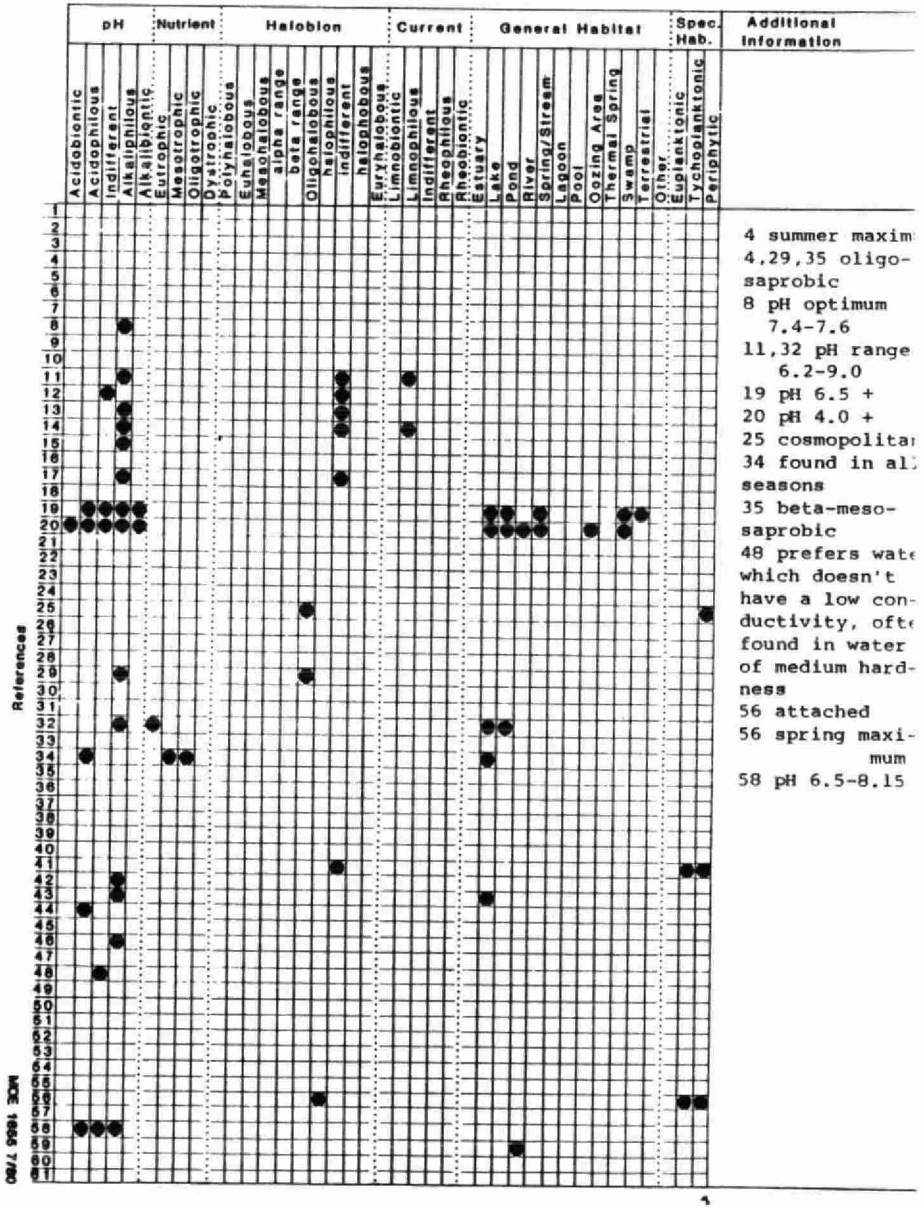
Taxon Synedra sp.

Synonym



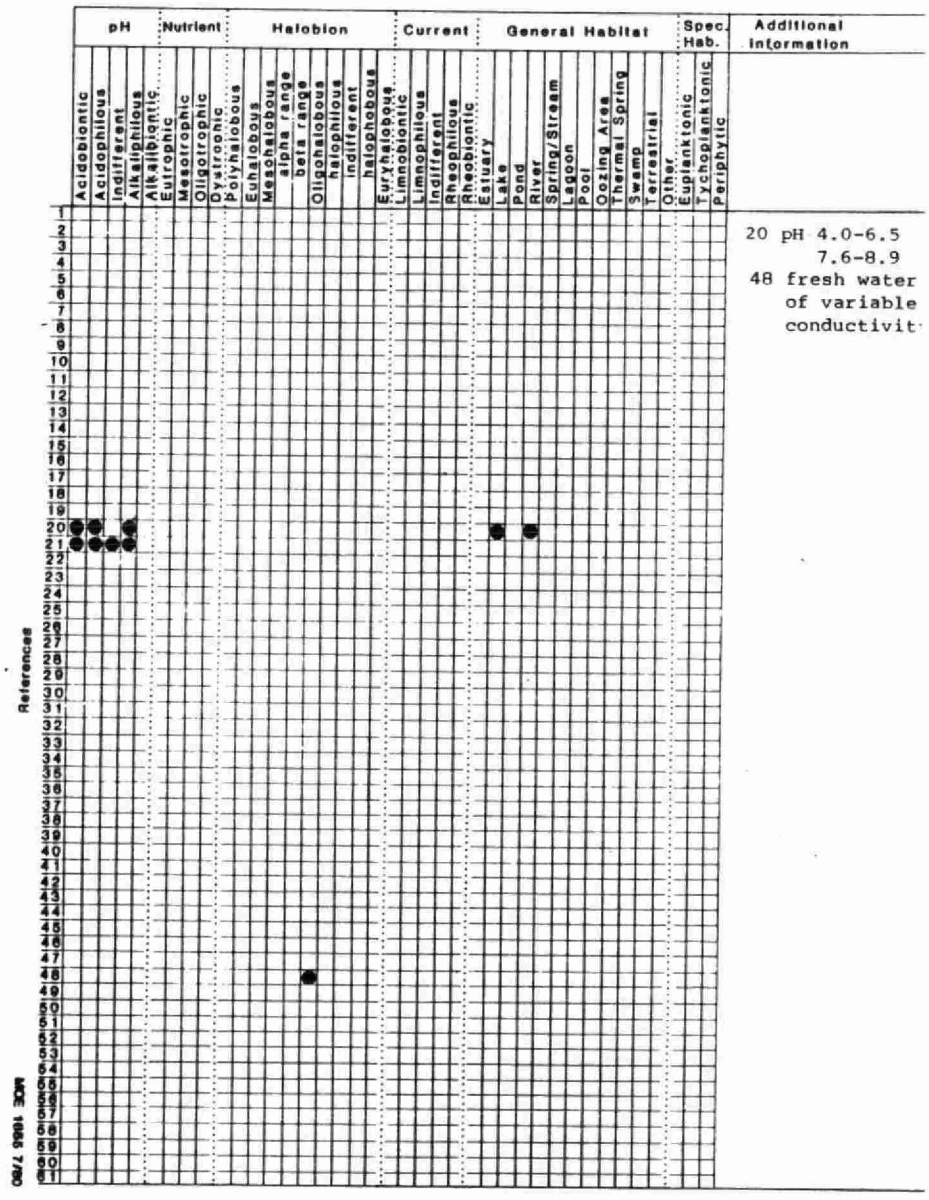
Taxon Synedra acus Kutz.

Synonym



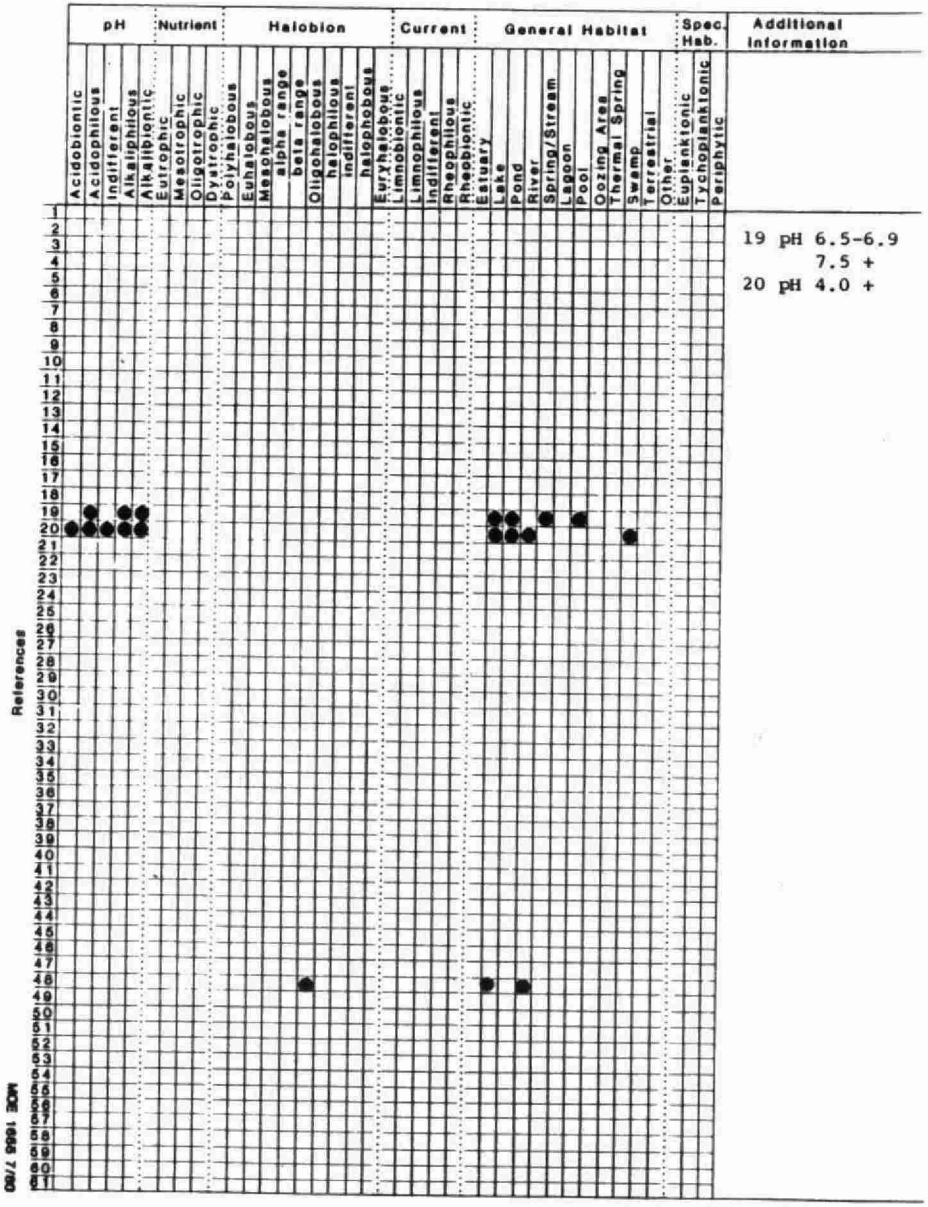
Taxon Synedra amphicephala Kutz.

Synonym



Taxon Synedra capitata Ehr.

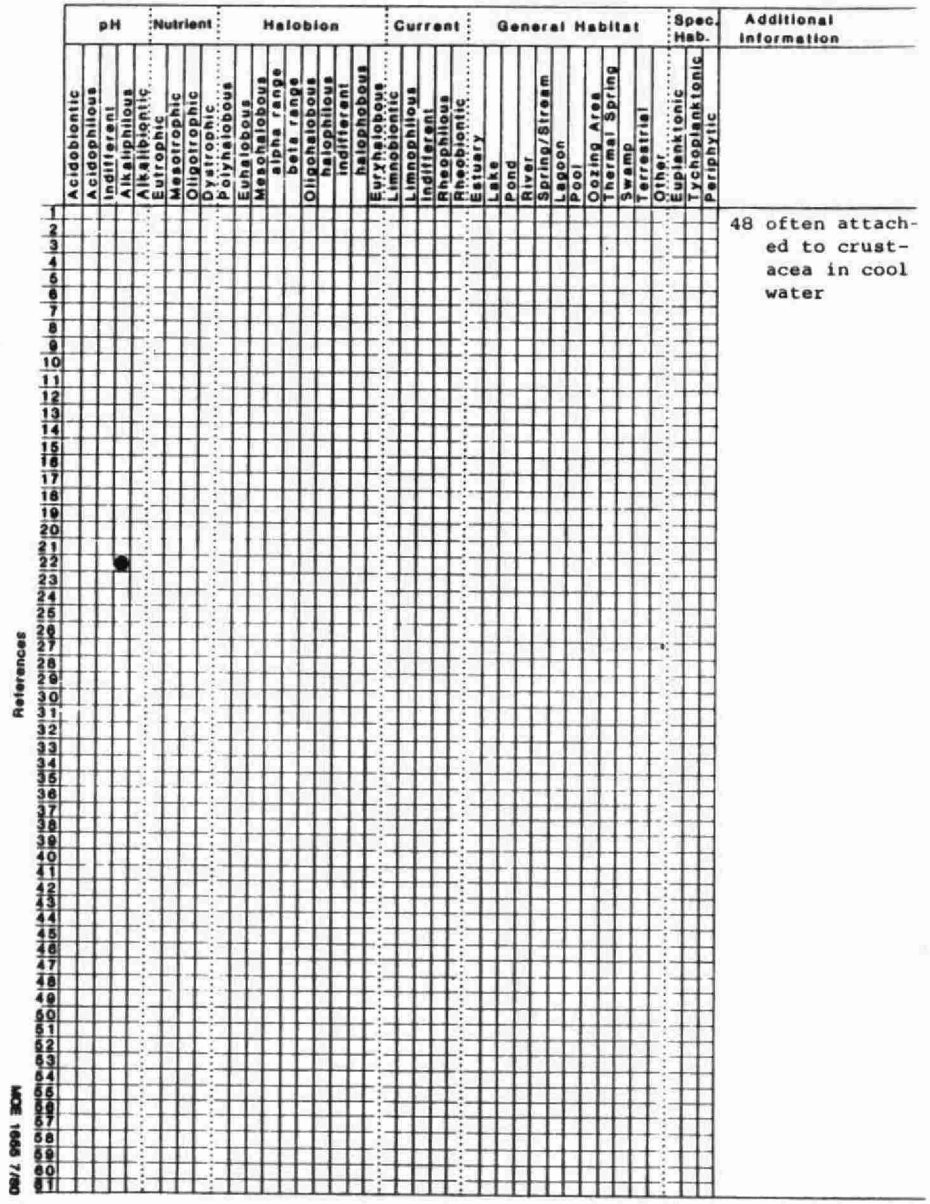
Synonym



19 pH 6.5-6.9
7.5 +
20 pH 4.0 +

Taxon Synedra cyclopum Brut.

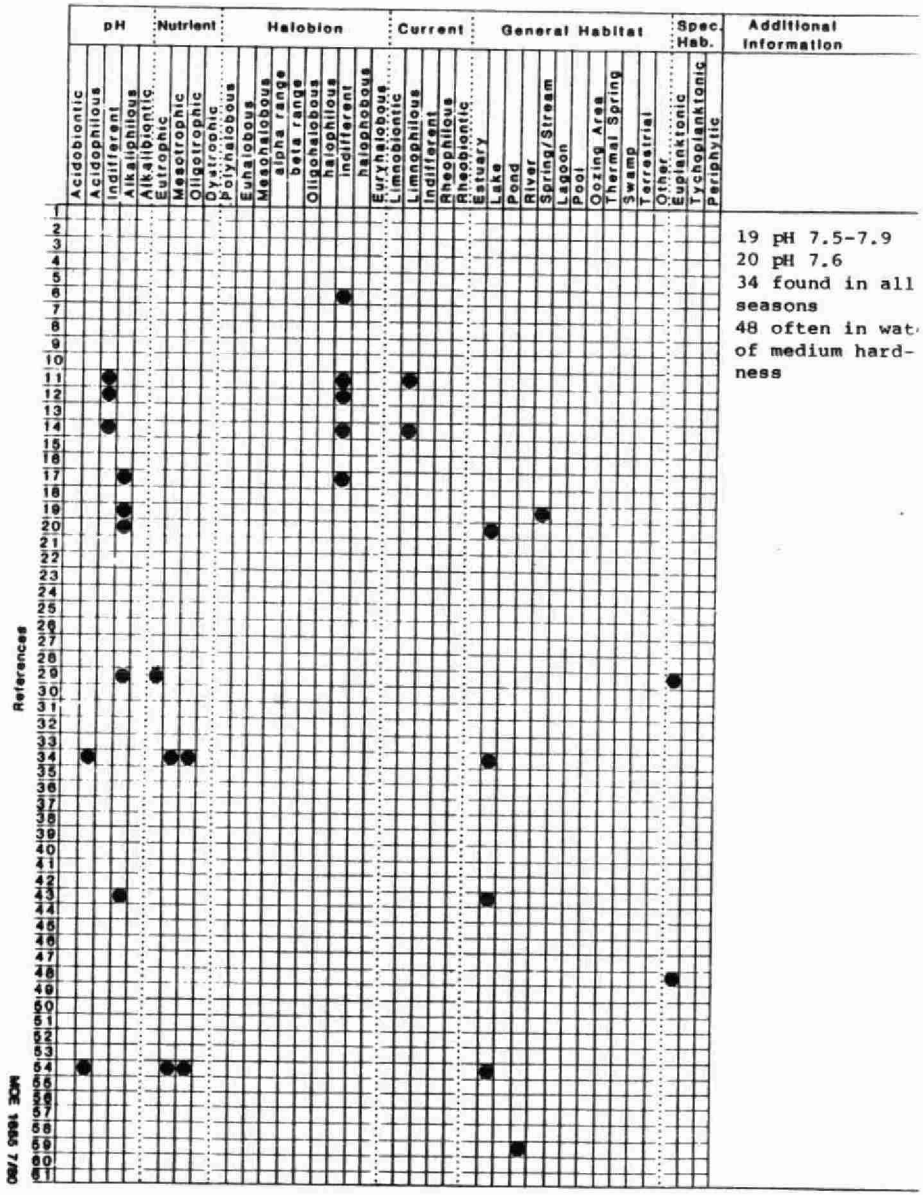
Synonym



48 often attached to crustacea in cool water

Taxon Synedra delicatissima var. angustissima Grun.

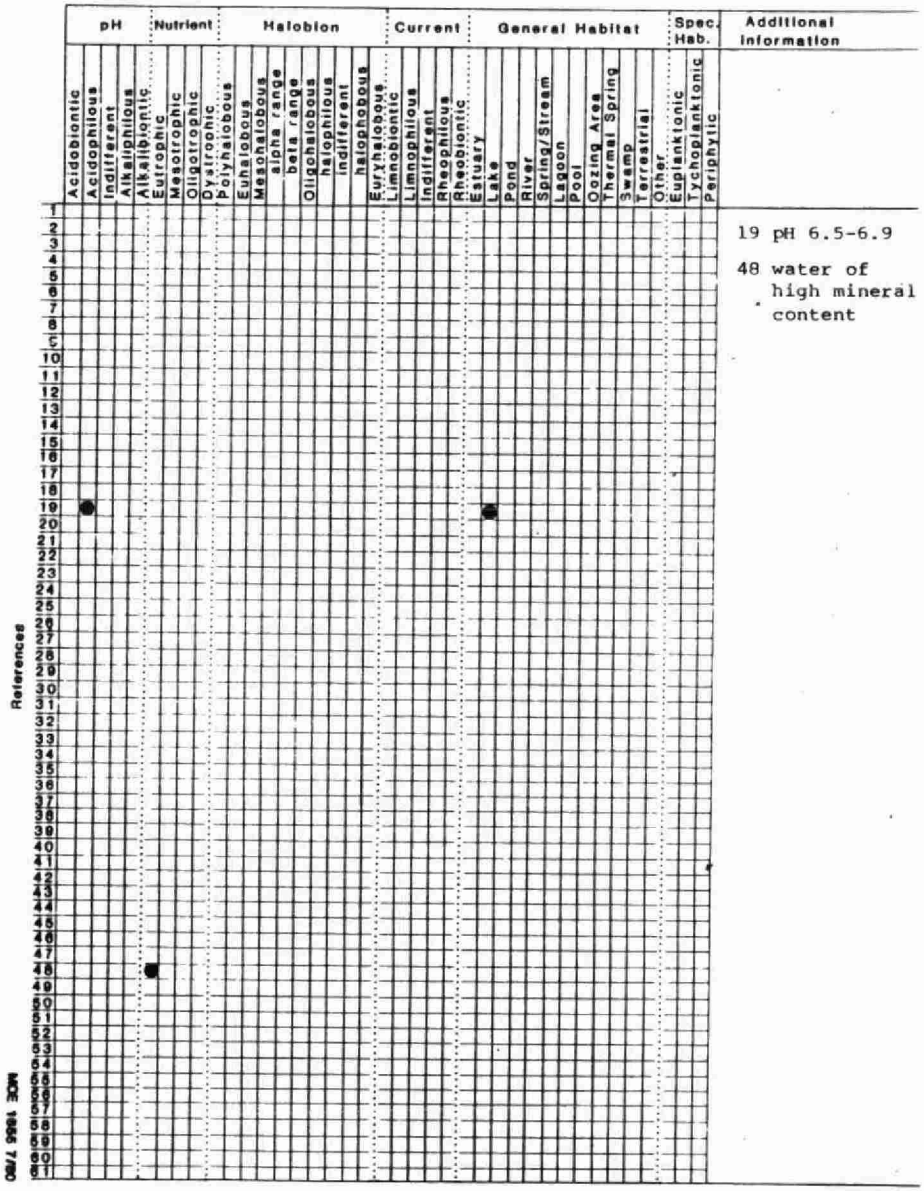
Synonym



19 pH 7.5-7.9
20 pH 7.6
34 found in all seasons
48 often in wat of medium hard-ness

Taxon Synedra famelica Kutz.

Synonym



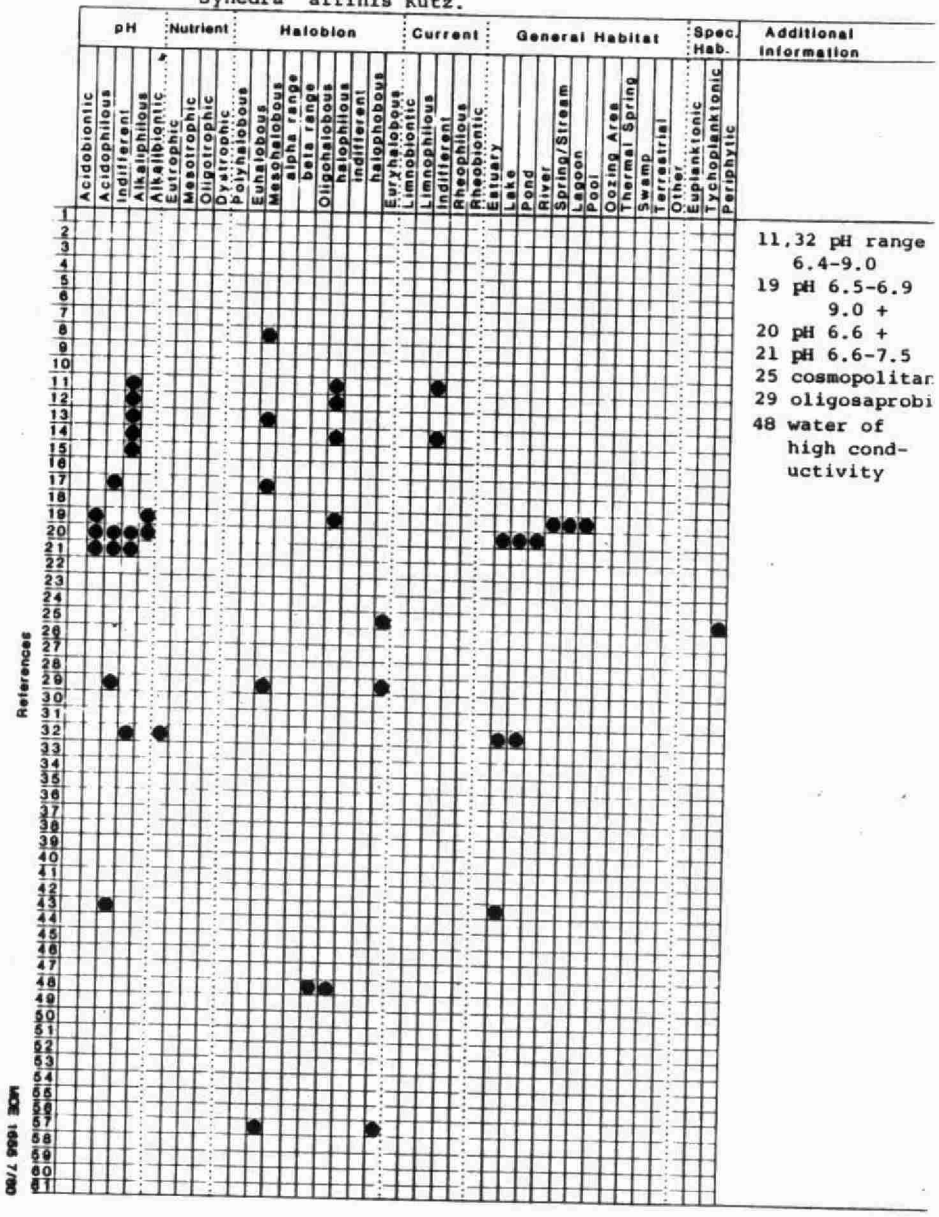
19 pH 6.5-6.9

48 water of high mineral content

Taxon Synedra fasciculata (Ag.) Kutz. var. fasciculata

Synonym Synedra tabulata (Ag.) Kutz.

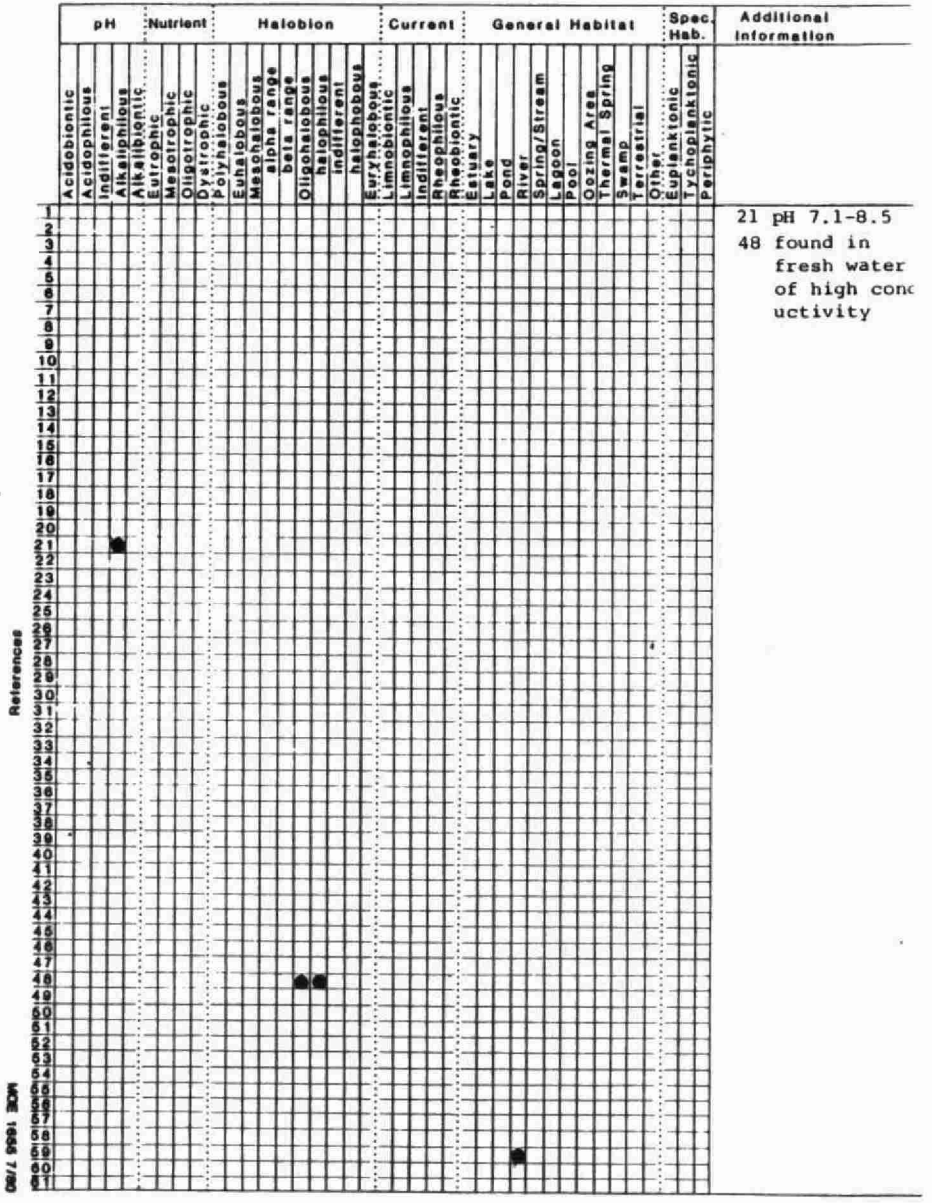
Synedra affinis Kutz.



11,32 pH range 6.4-9.0
19 pH 6.5-6.9 9.0 +
20 pH 6.6 +
21 pH 6.6-7.5
25 cosmopolitan
29 oligosaprobi
48 water of high conductivity

Taxon Synedra fasciculata var. truncata (Grev.) Patr.

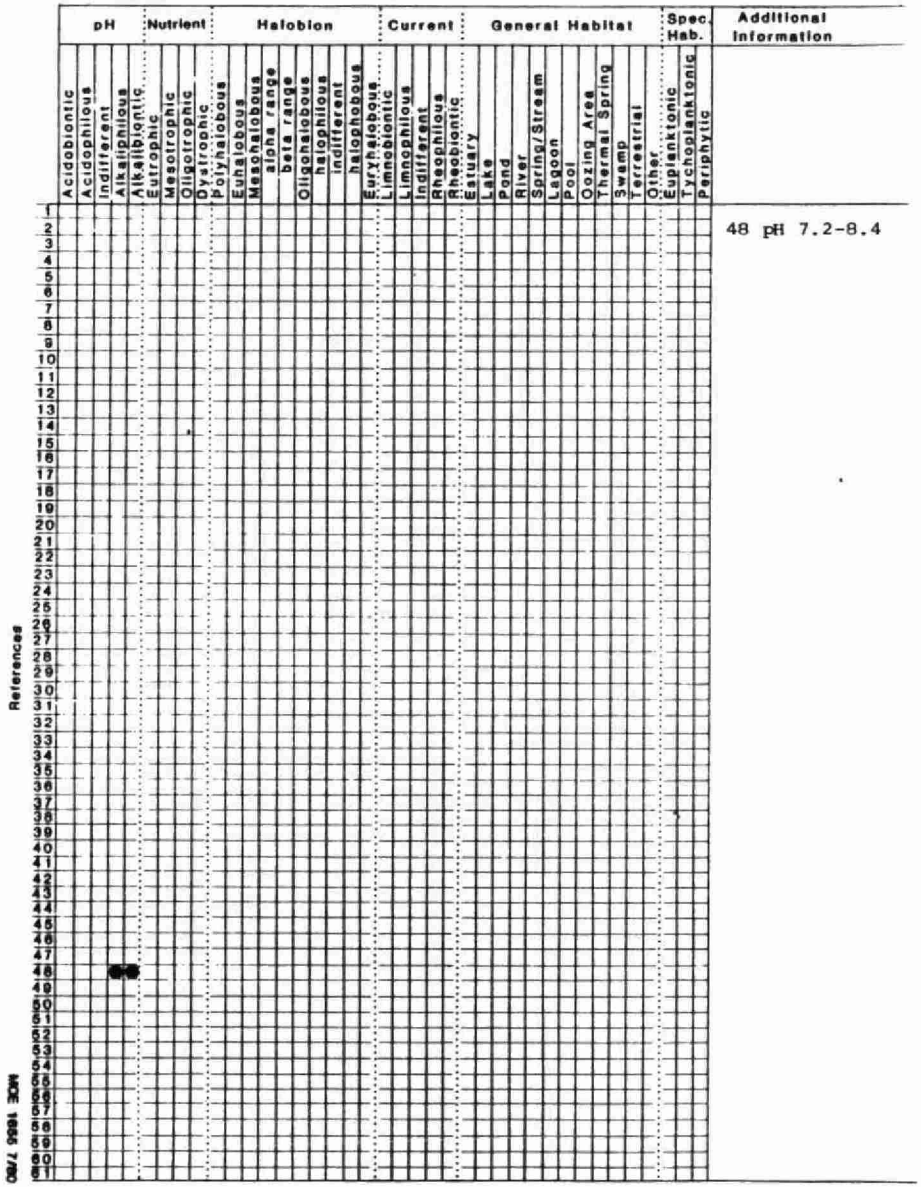
Synonym Synedra tabulata var. fasciculata (Ag.) Hust.



21 pH 7.1-8.5
48 found in fresh water of high conductivity

Taxon Synedra mazamaensis Sov.

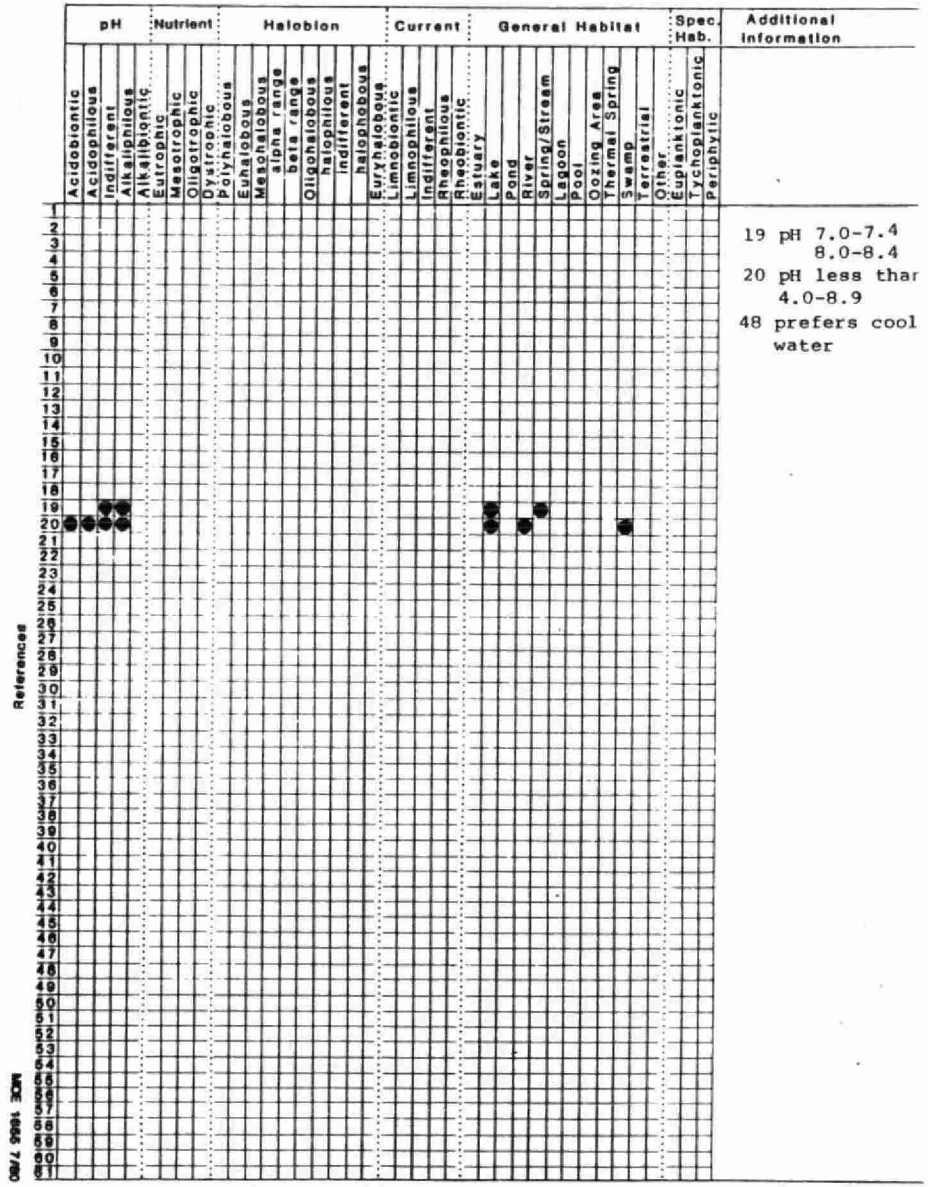
Synonym



48 pH 7.2-8.4

Taxon Synedra minuscula Grun.

Synonym



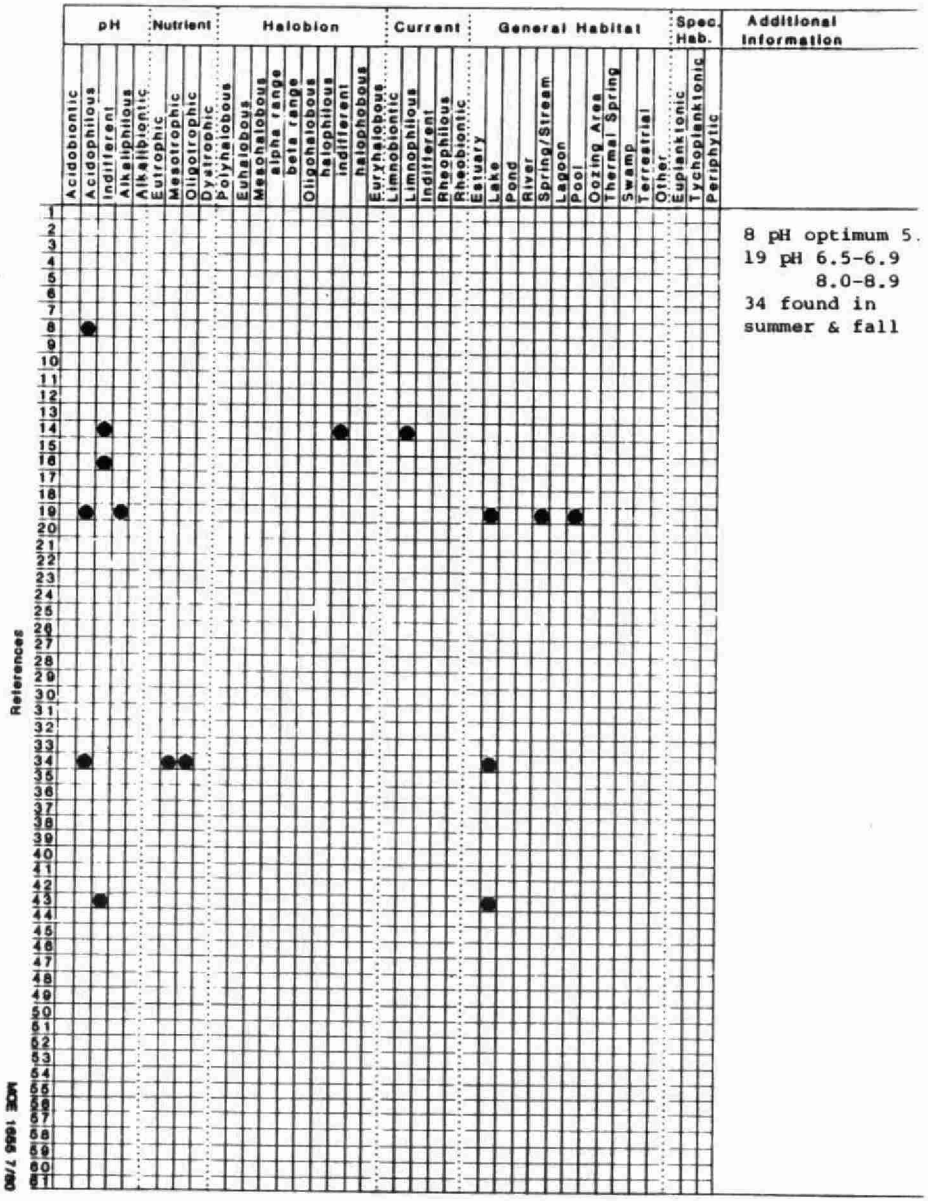
19 pH 7.0-7.4
8.0-8.4

20 pH less thar
4.0-8.9

48 prefers cool
water

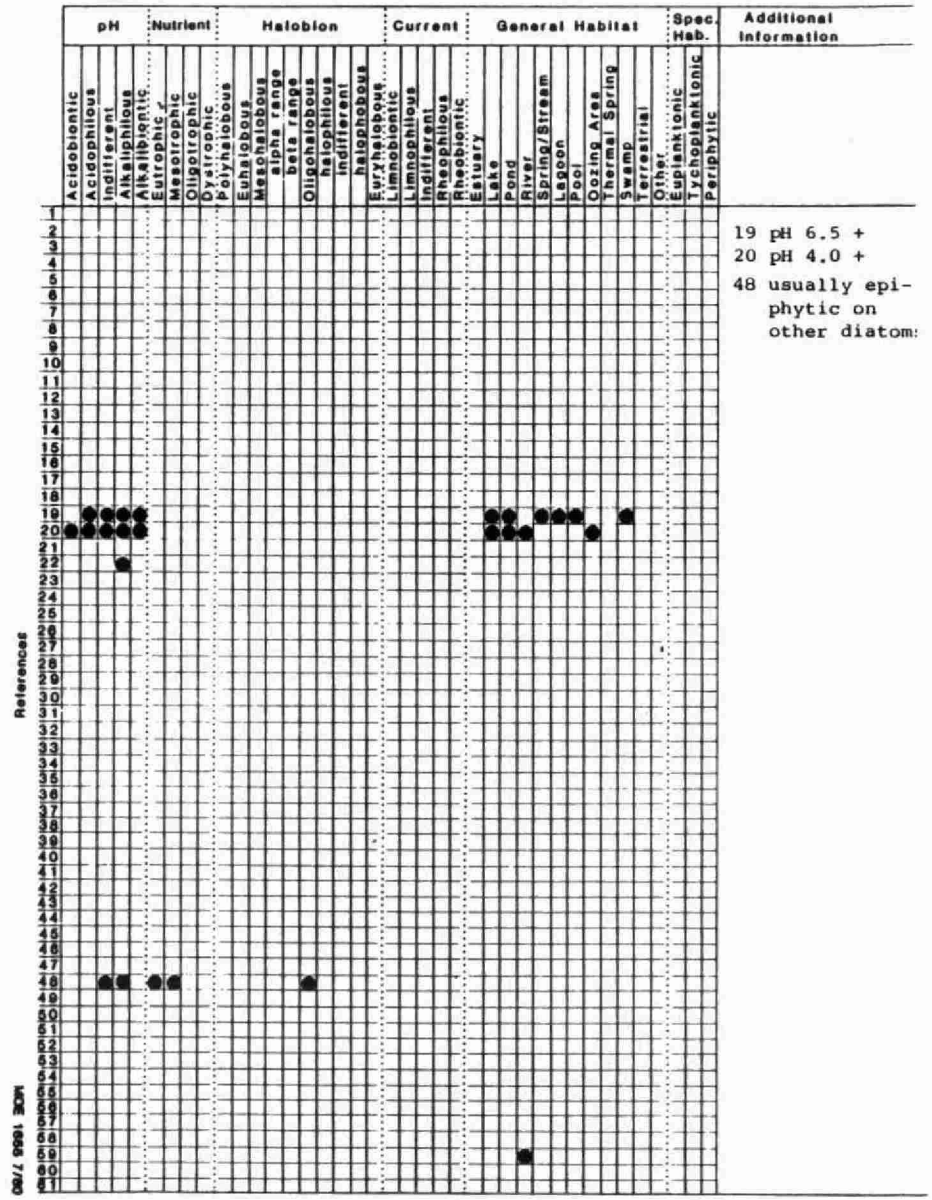
Taxon Synedra nana Meist.

Synonym



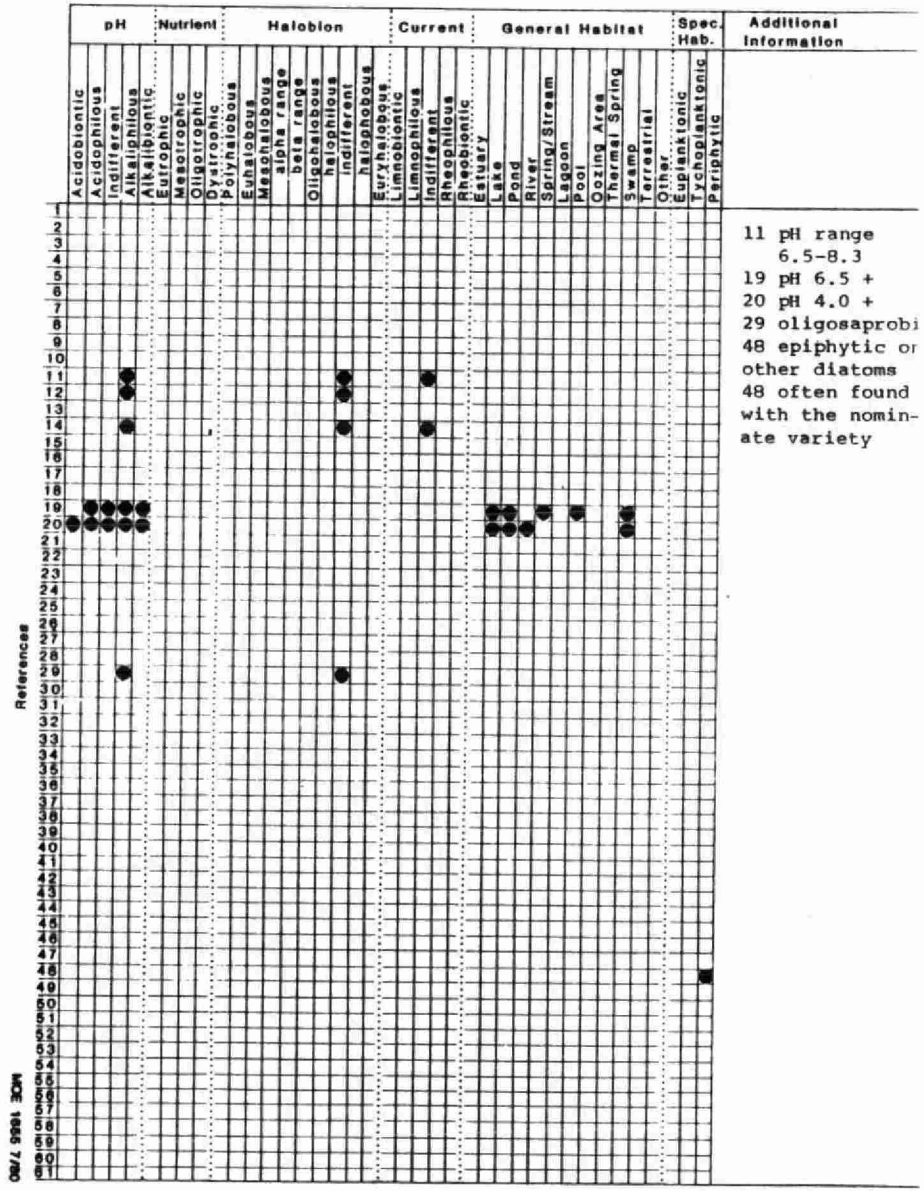
Taxon Synedra parasitica (W. Sm.) Hust. var. parasitica

Synonym



Taxon Synedra parasitica var. subconstricta (Grun.) Hust.

Synonym

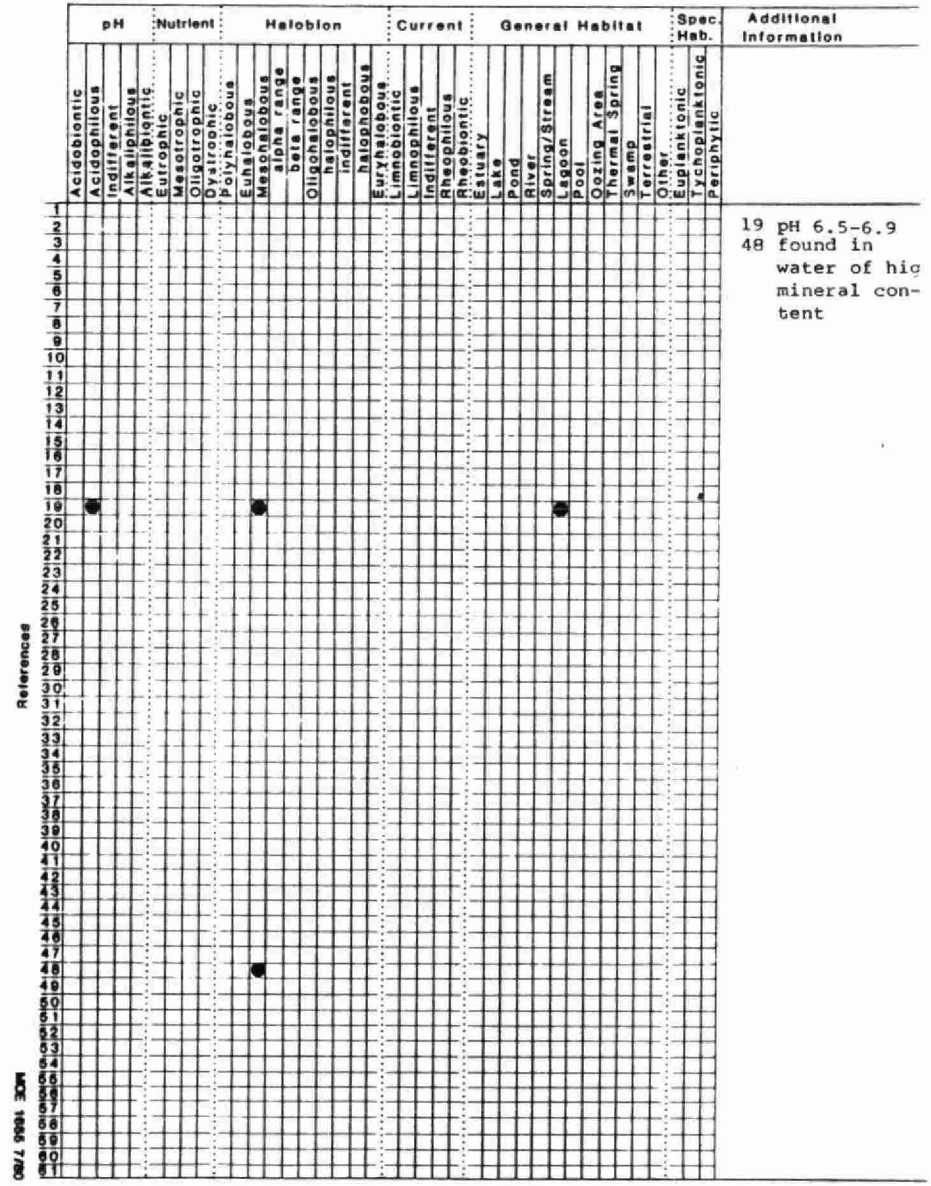


Additional Information

11 pH range 6.5-8.3
19 pH 6.5 +
20 pH 4.0 +
29 oligosaprobi
48 epiphytic or other diatoms
48 often found with the nominate variety

Taxon Synedra pulchella var. lanceolata O'Meara

Synonym

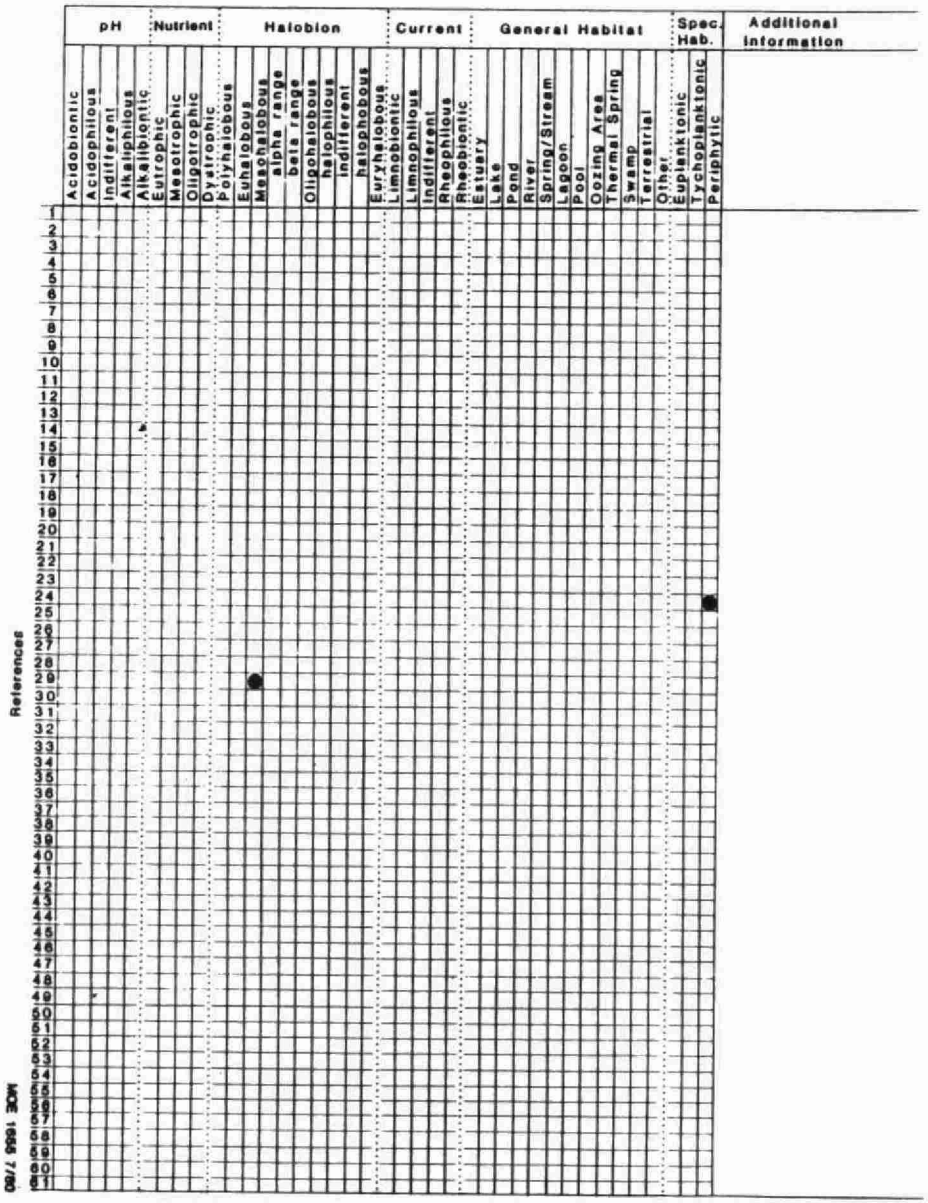


Additional Information

19 pH 6.5-6.9
48 found in water of hig mineral content

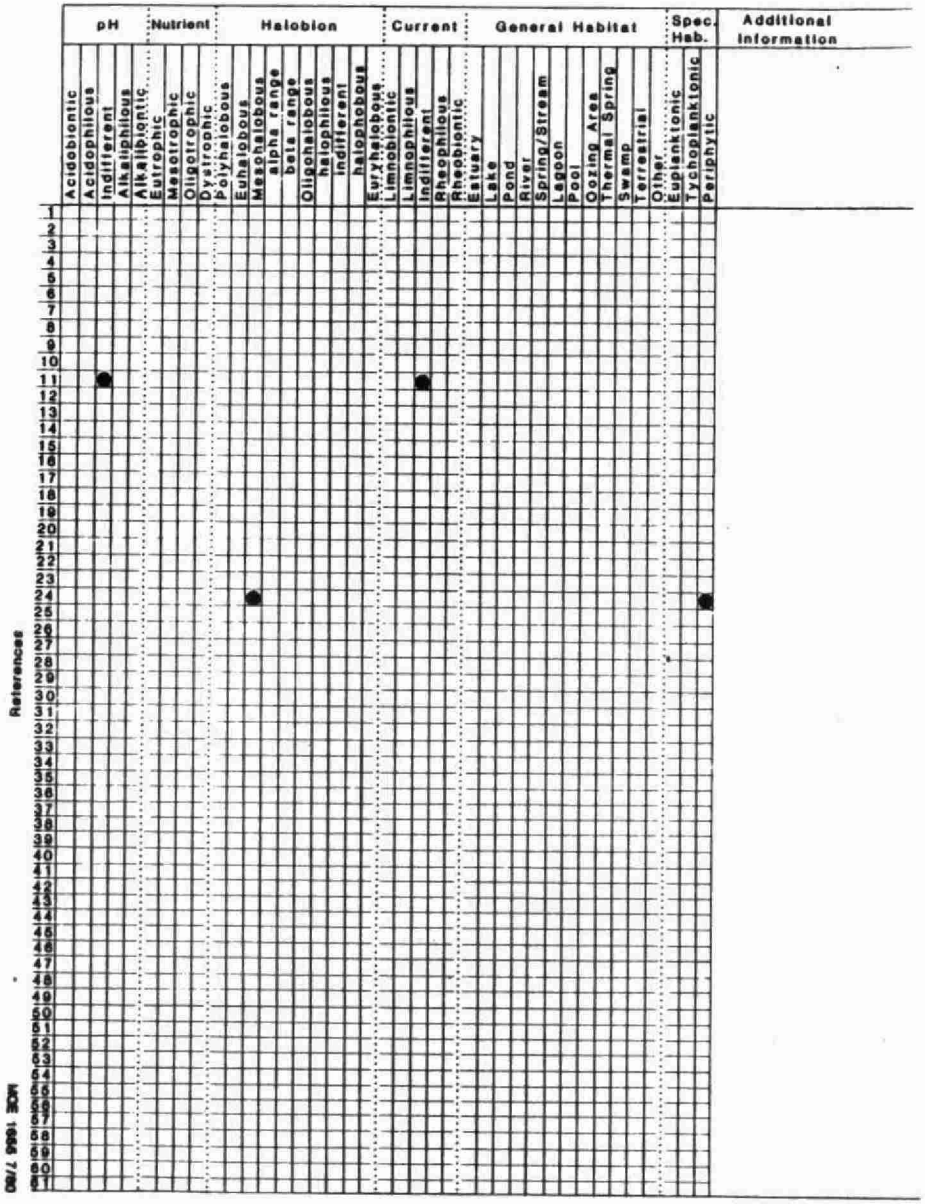
Taxon Synedra pulchella var. lanceolata f. constricta Hust.

Synonym



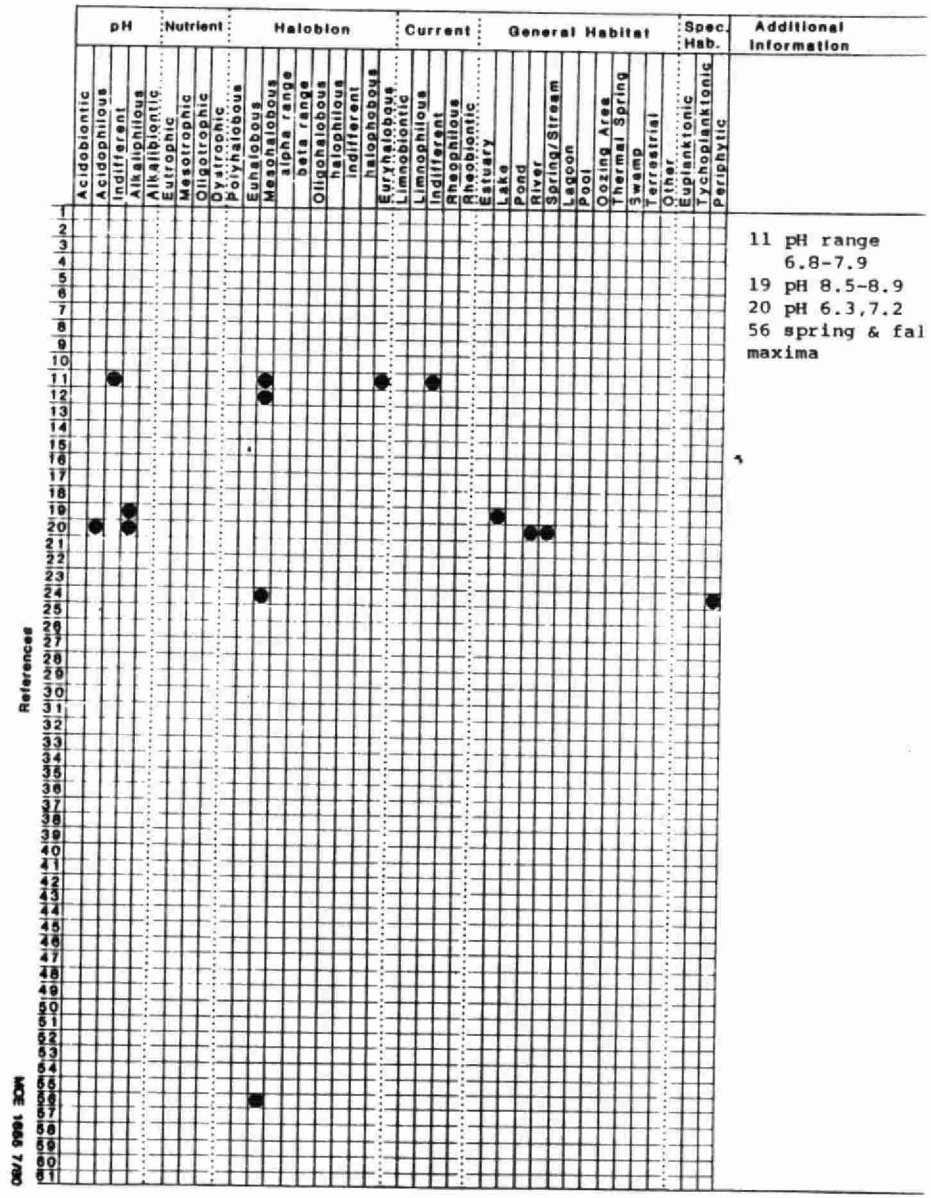
Taxon Synedra pulchella var. minutula Hust.

Synonym



Taxon Synedra pulchella var. naviculacea Grun.

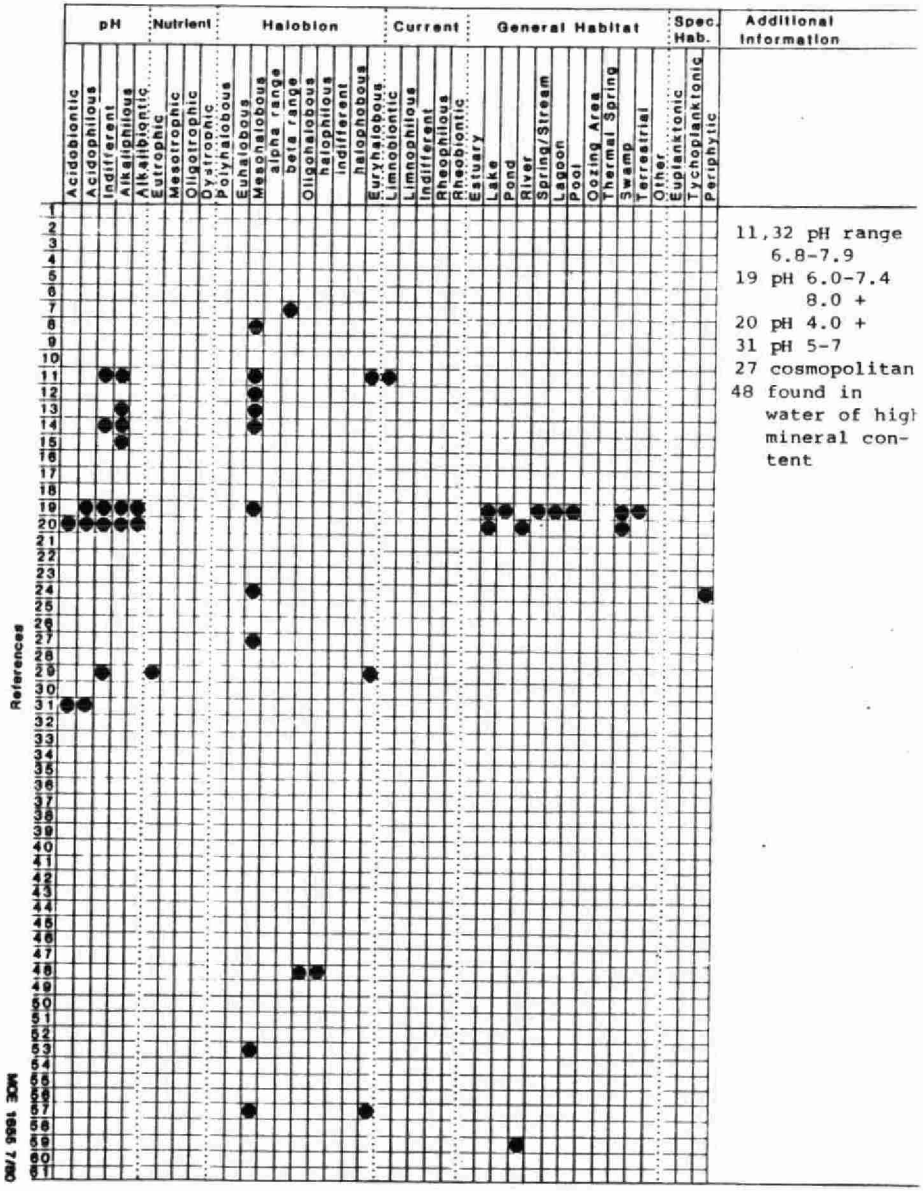
Synonym



11 pH range 6.8-7.9
19 pH 8.5-8.9
20 pH 6.3,7.2
56 spring & fal maxima

Taxon Synedra pulchella Ralfs ex Kutz. var. pulchella

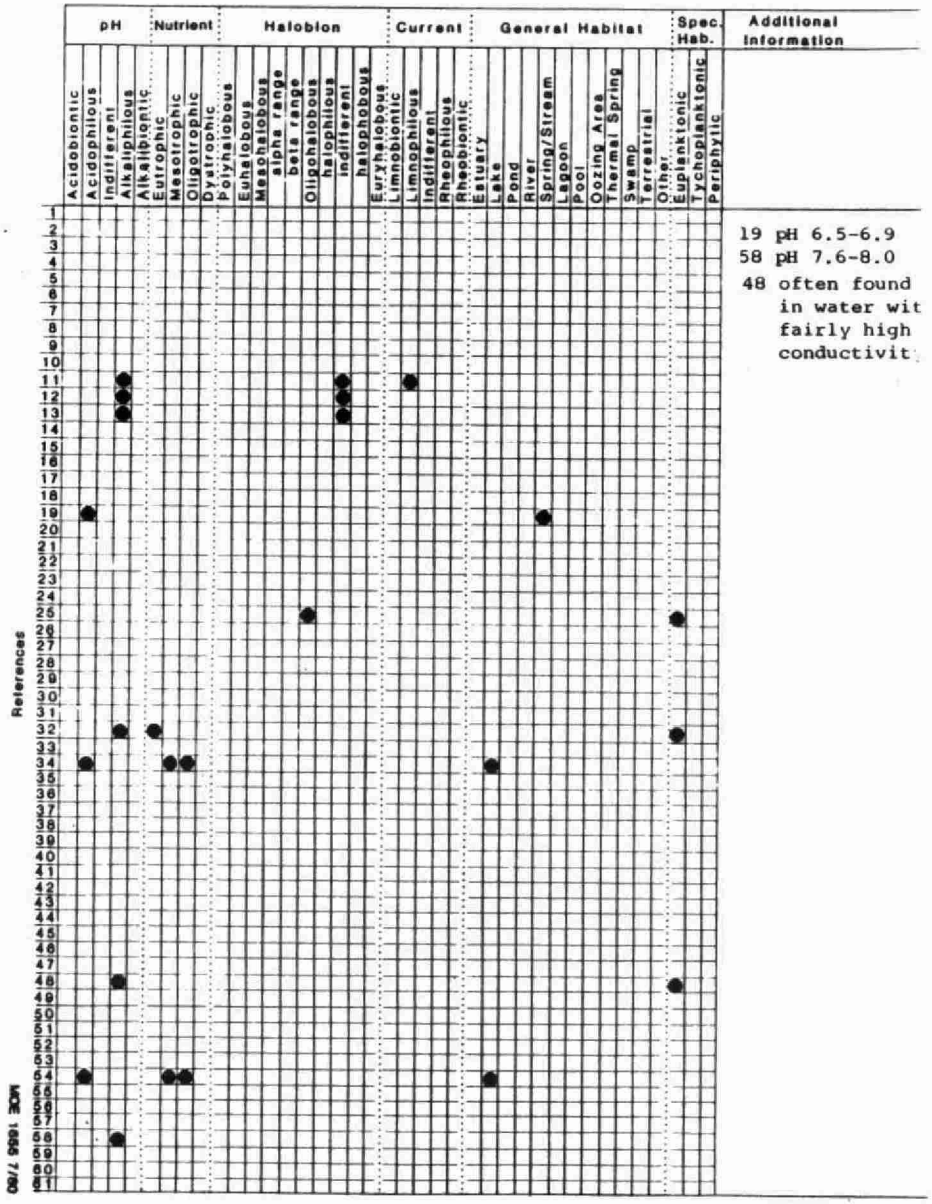
Synonym



11,32 pH range 6.8-7.9
19 pH 6.0-7.4 8.0 +
20 pH 4.0 +
31 pH 5-7
27 cosmopolitan
48 found in water of high mineral content

Taxon Synedra radians Kutz.

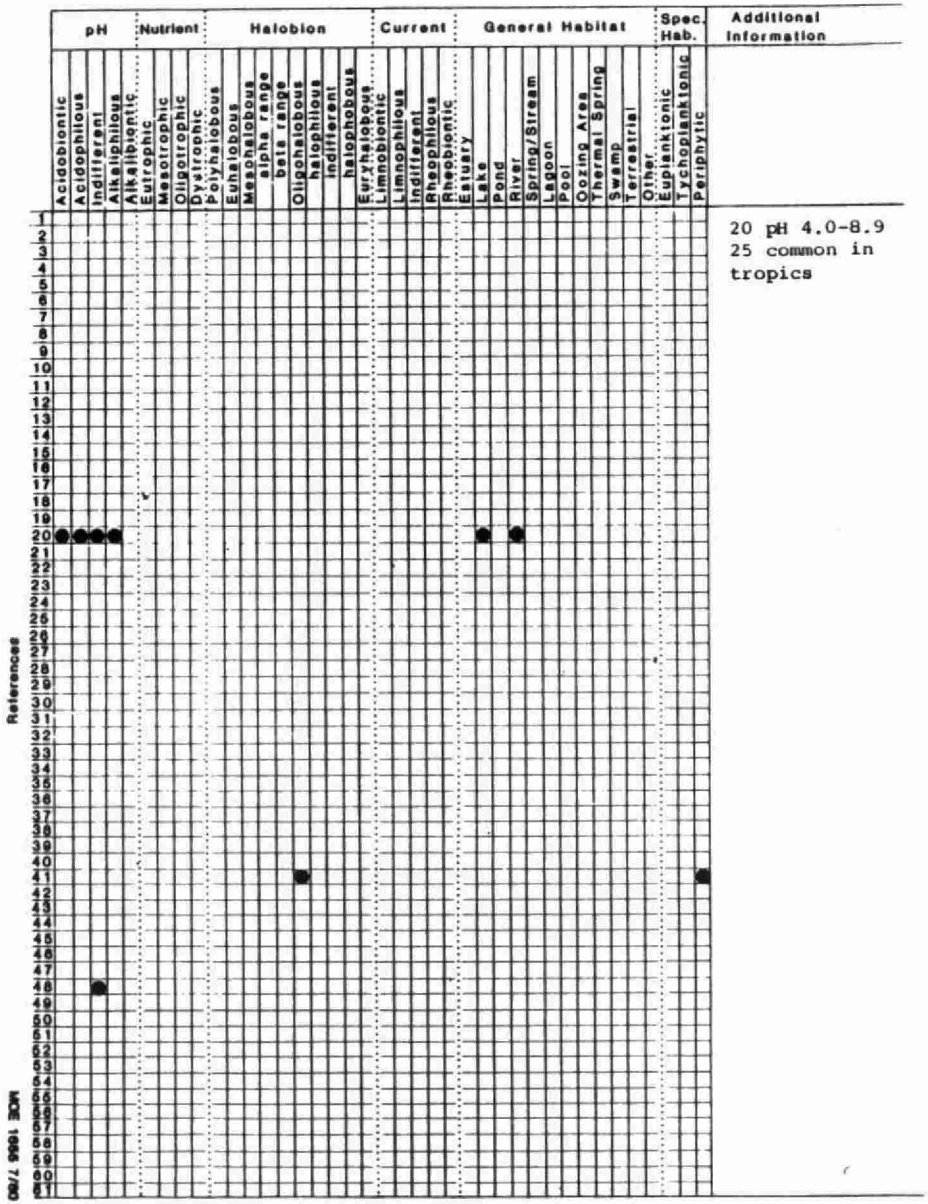
Synonym Synedra acus var. radians (Kutz.) Hust. 48



19 pH 6.5-6.9
58 pH 7.6-8.0
48 often found in water wit fairly high conductivit

Taxon Synedra rumpens var. familiaris (Kutz.) Hust.

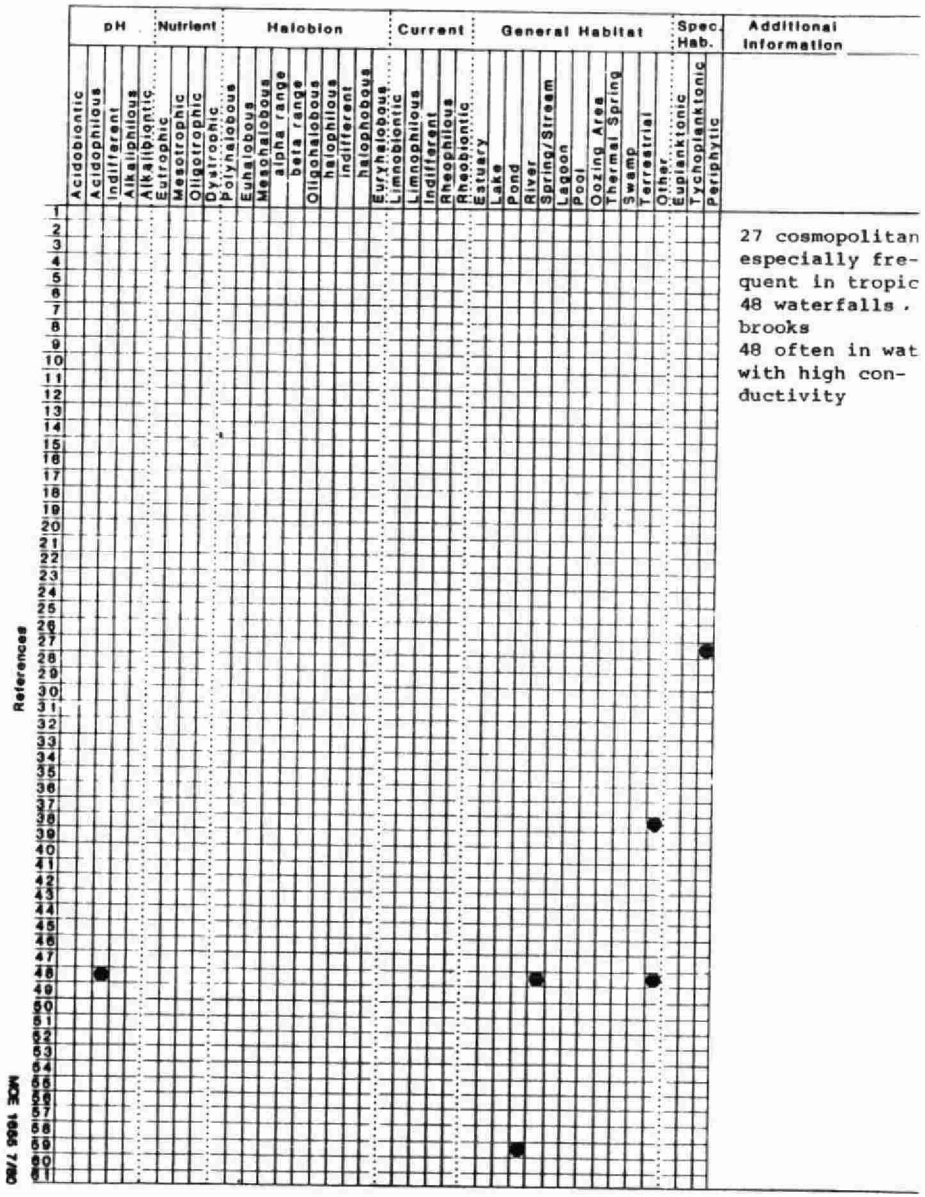
Synonym



20 pH 4.0-8.9
25 common in tropics

Taxon Synedra rumpens var. fragilarioides Grun.

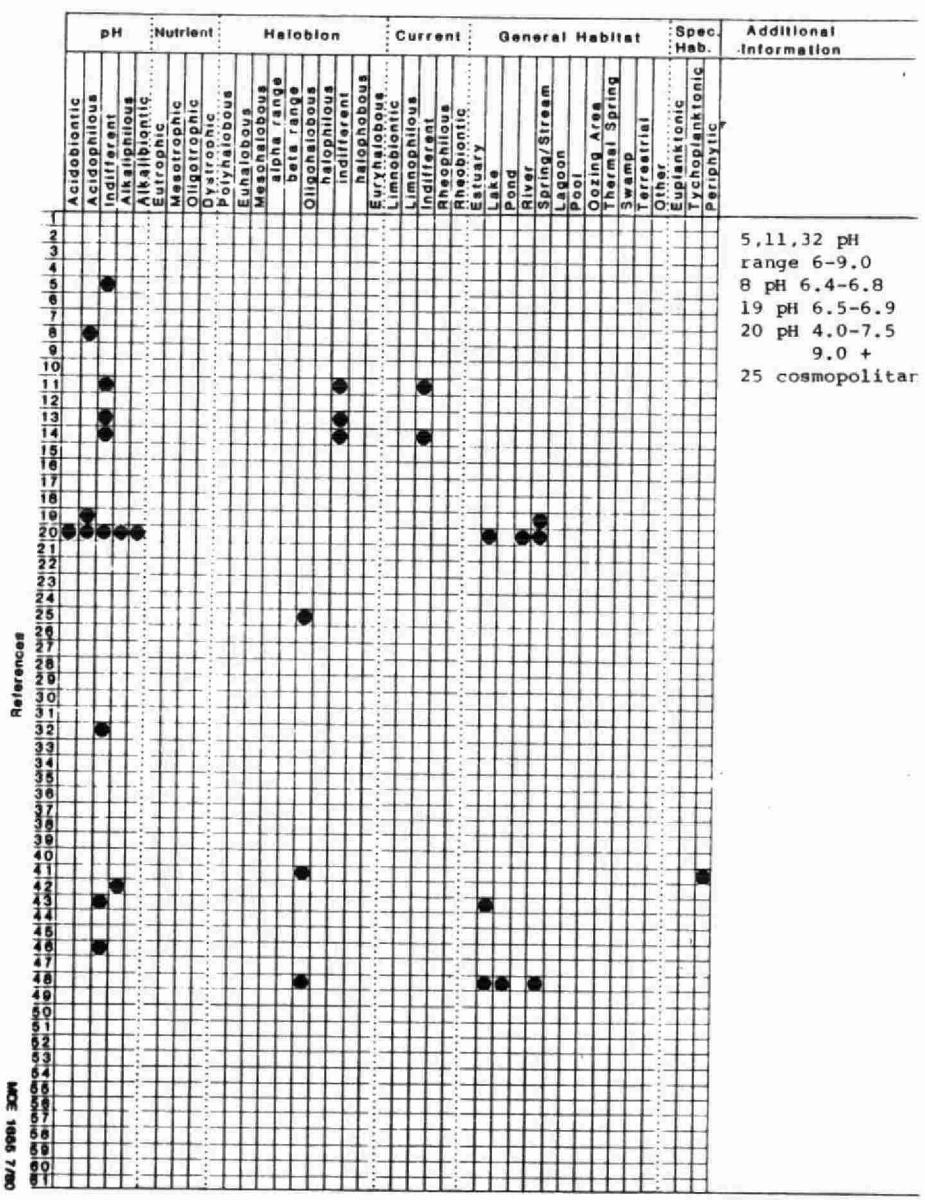
Synonym



27 cosmopolitan
especially fre-
quent in tropic
48 waterfalls .
brooks
48 often in wat
with high con-
ductivity

Taxon Synedra rumpens Kutz. var. rumpens

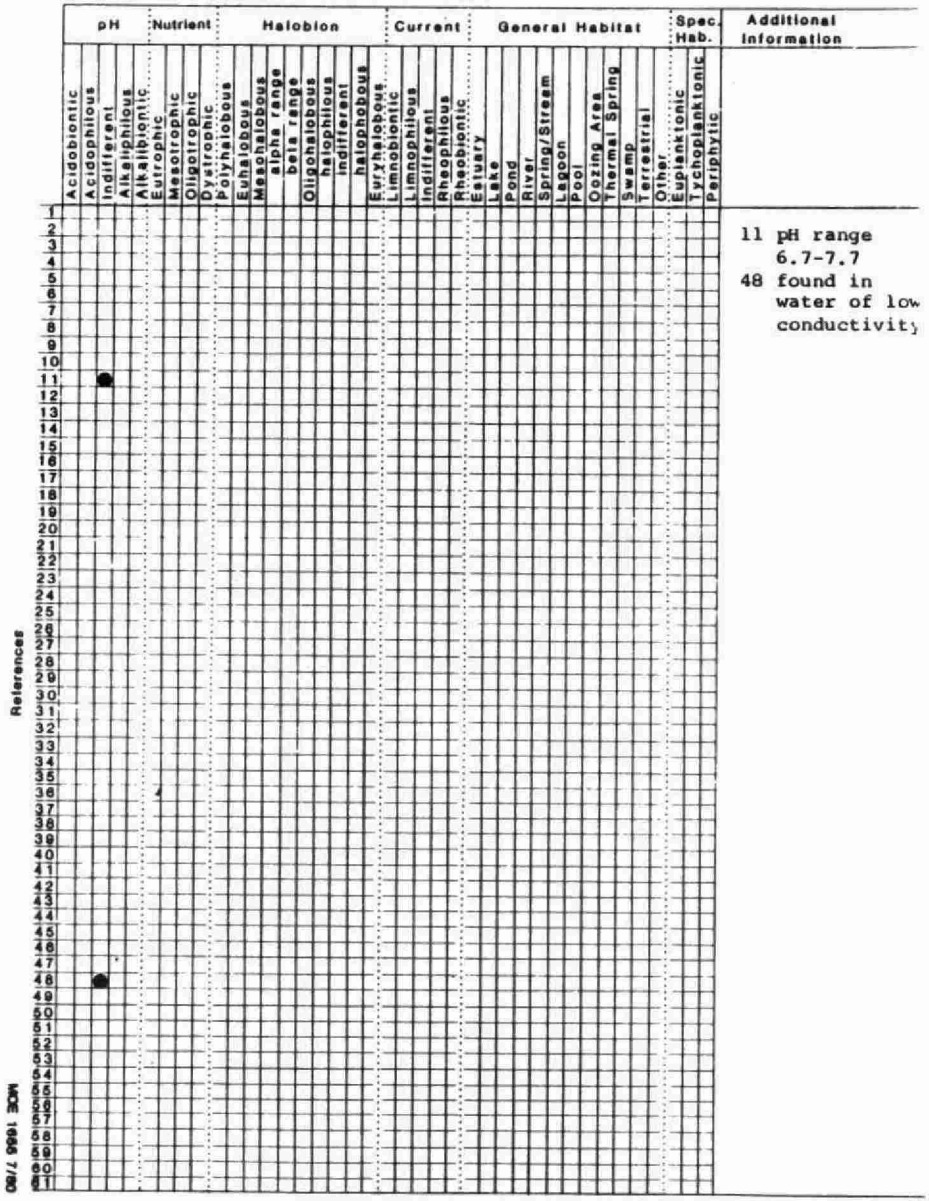
Synonym



5,11,32 pH
range 6-9.0
8 pH 6.4-6.8
19 pH 6.5-6.9
20 pH 4.0-7.5
9.0 +
25 cosmopolitar

Taxon Synedra rumpens var. scotica Grun.

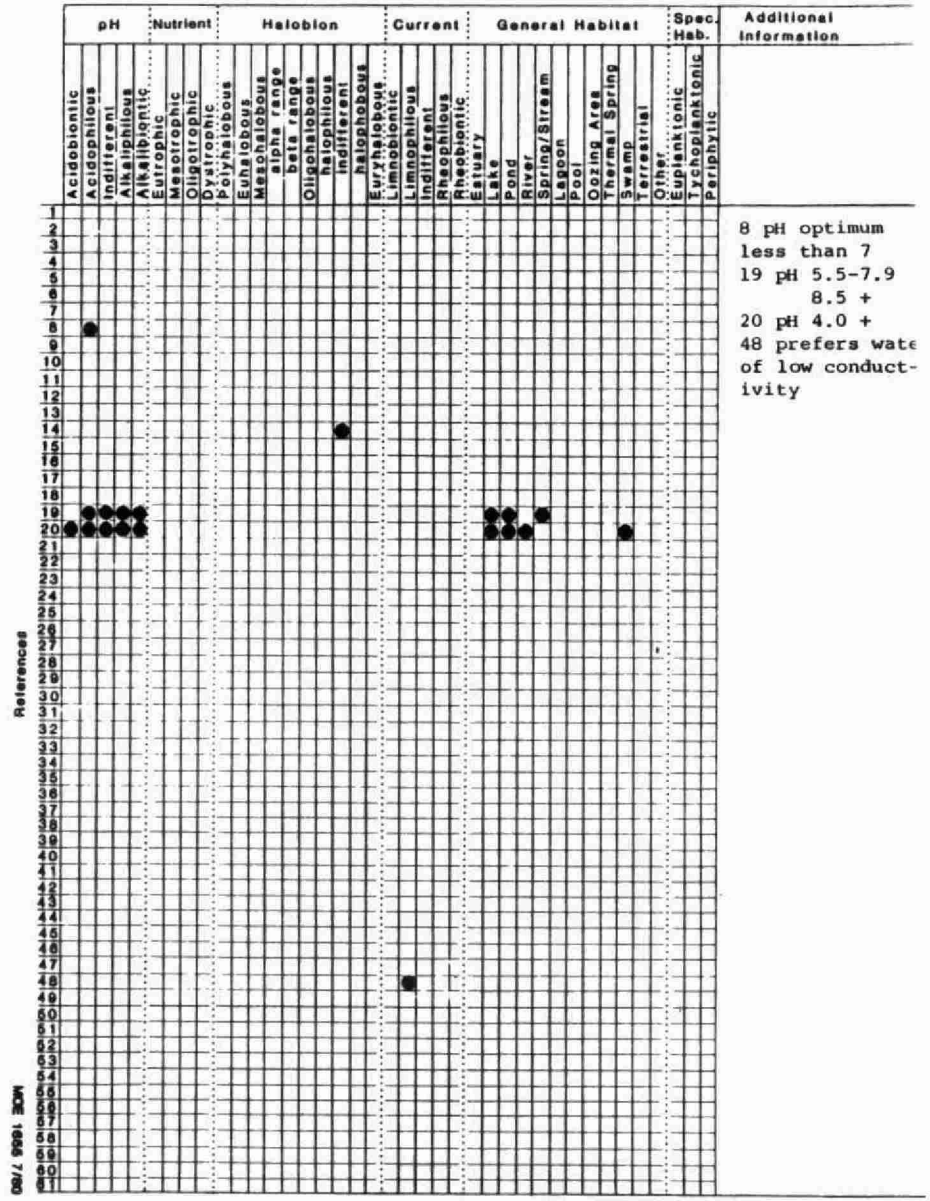
Synonym



11 pH range 6.7-7.7
48 found in water of low conductivity

Taxon Synedra tenera W. Sm.

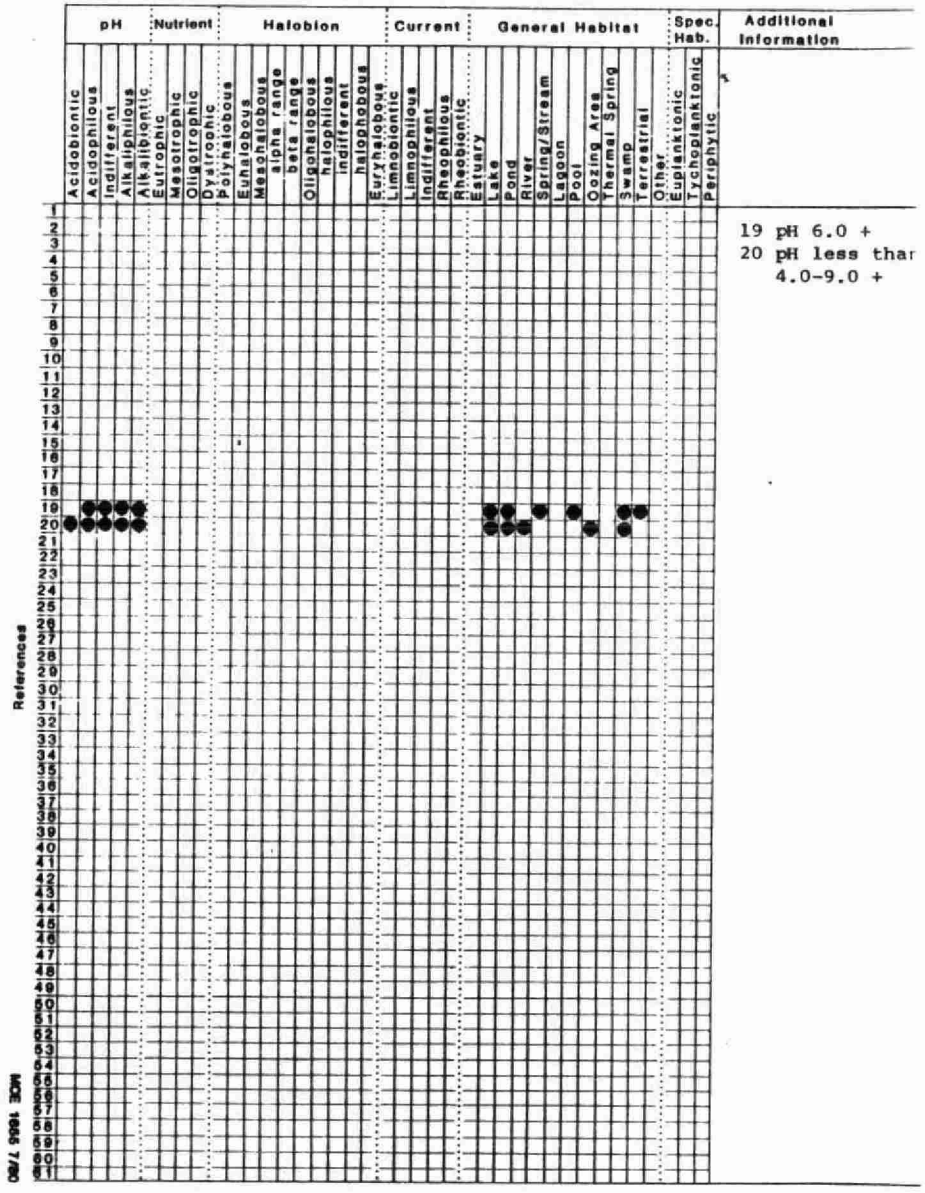
Synonym



8 pH optimum
less than 7
19 pH 5.5-7.9
8.5 +
20 pH 4.0 +
48 prefers wate
of low conduct-
ivity

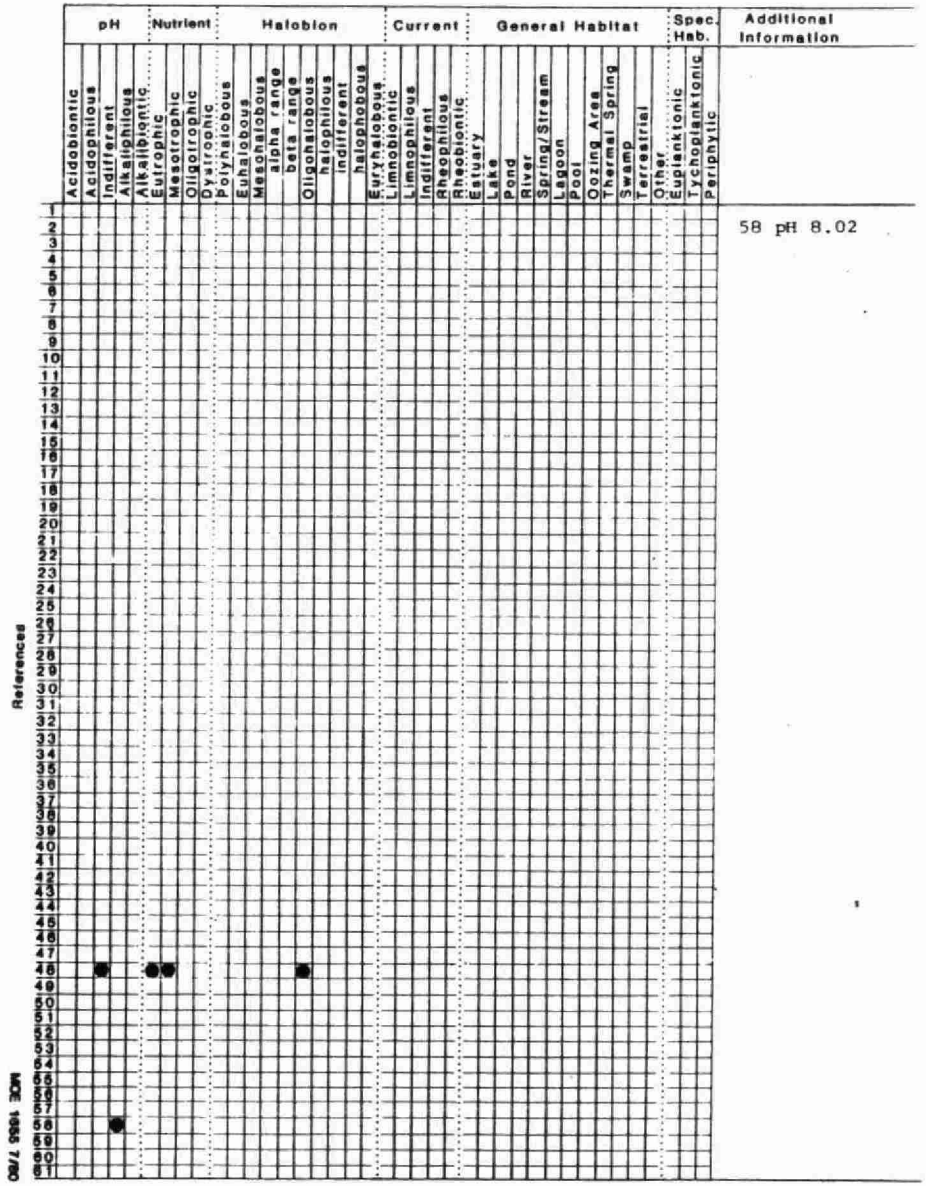
Taxon Synedra ulna var. aequalis (Kutz.) Hust.

Synonym



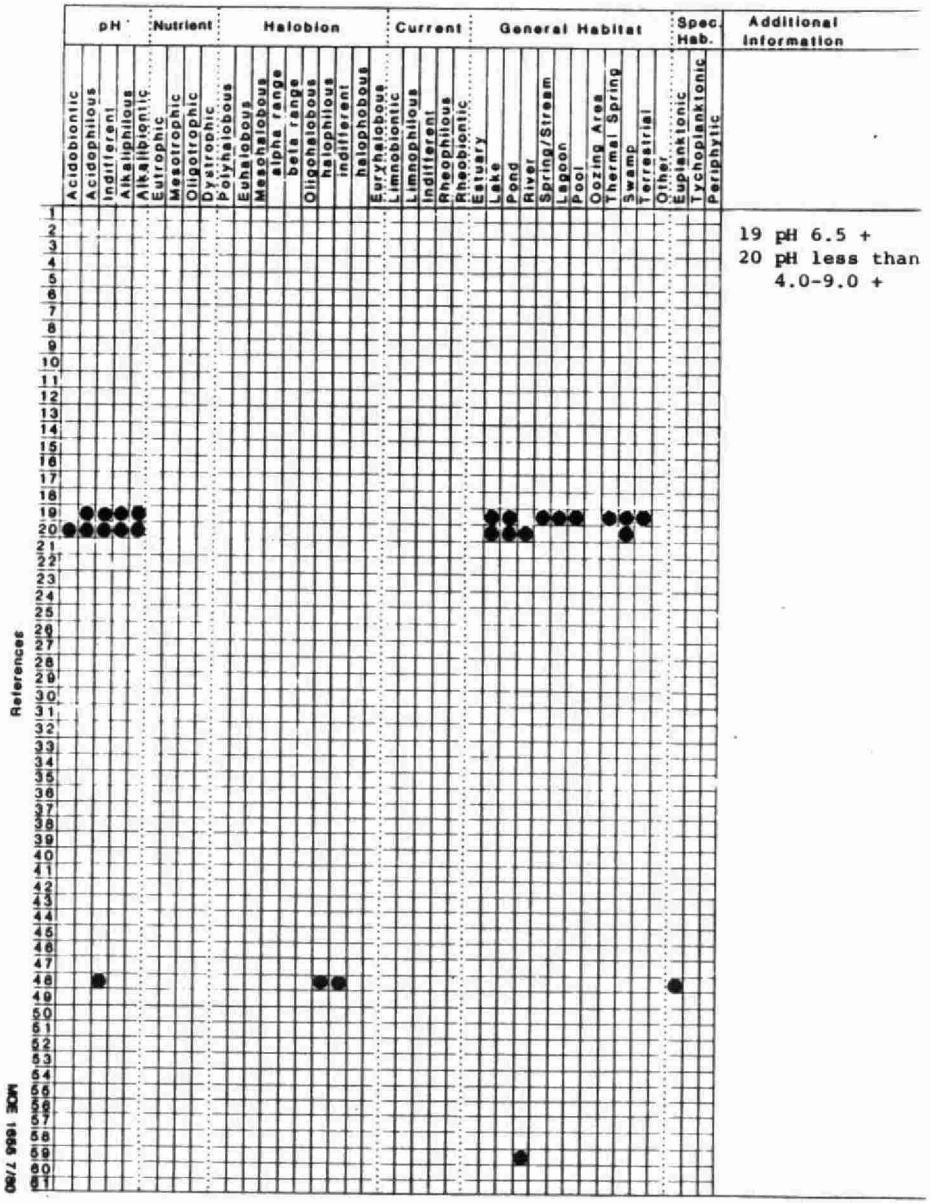
Taxon Synedra ulna var. amphirhynchus (Ehr.) Grun.

Synonym



Taxon Synedra ulna var. danica (Kutz.) V.Heurck

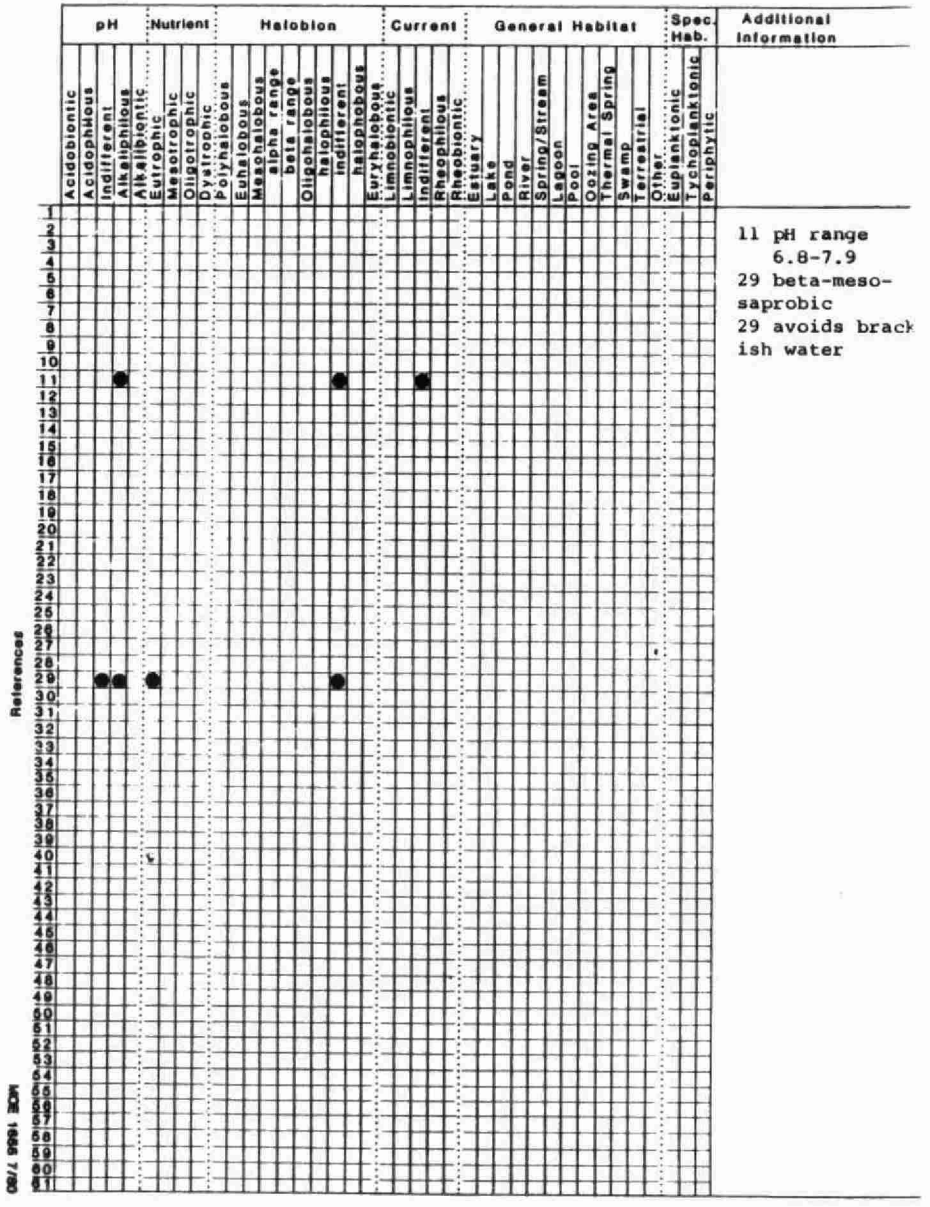
Synonym



19 pH 6.5 +
20 pH less than 4.0-9.0 +

Taxon Synedra ulna var. impressa Hust.

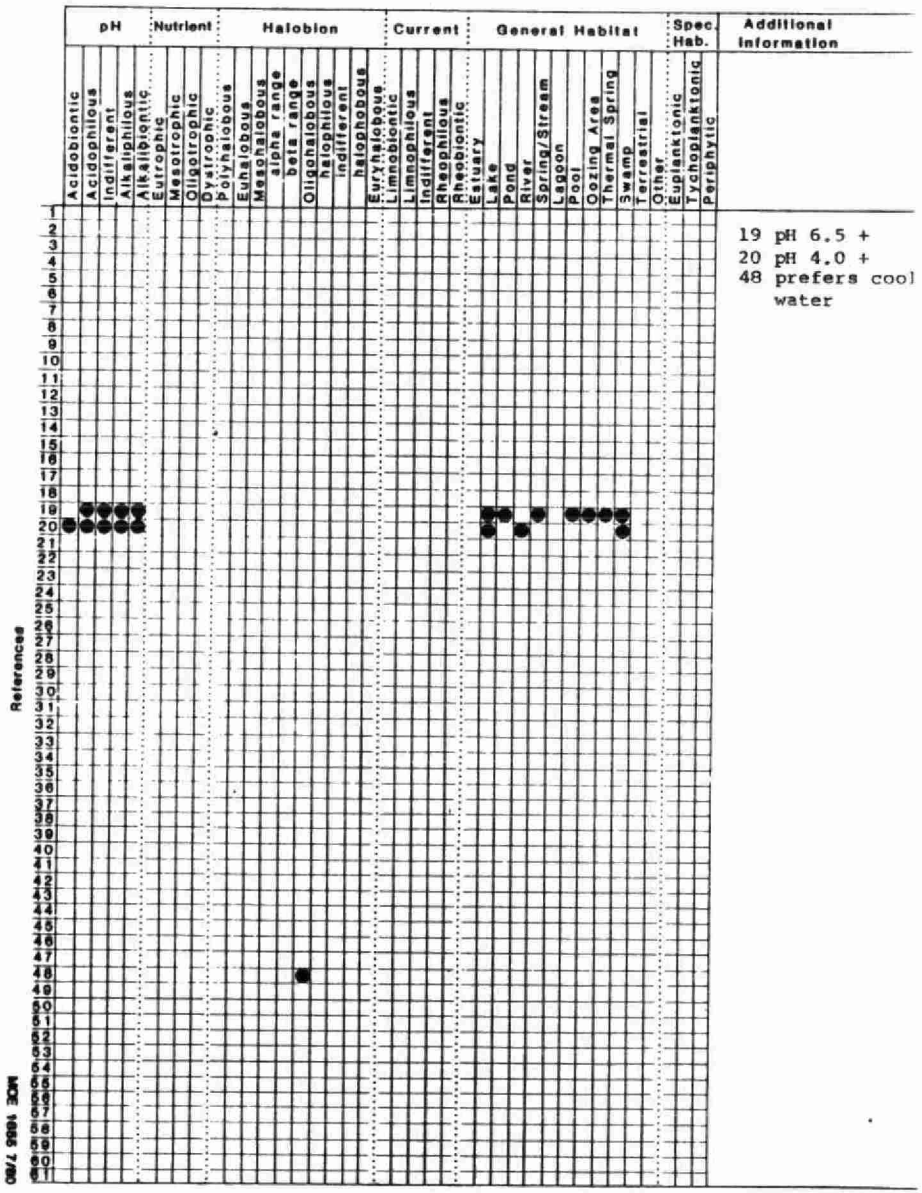
Synonym



11 pH range 6.8-7.9
29 beta-meso-saprobic
29 avoids brackish water

Taxon Synedra ulna var. longissima (W. Sm.) Brun.

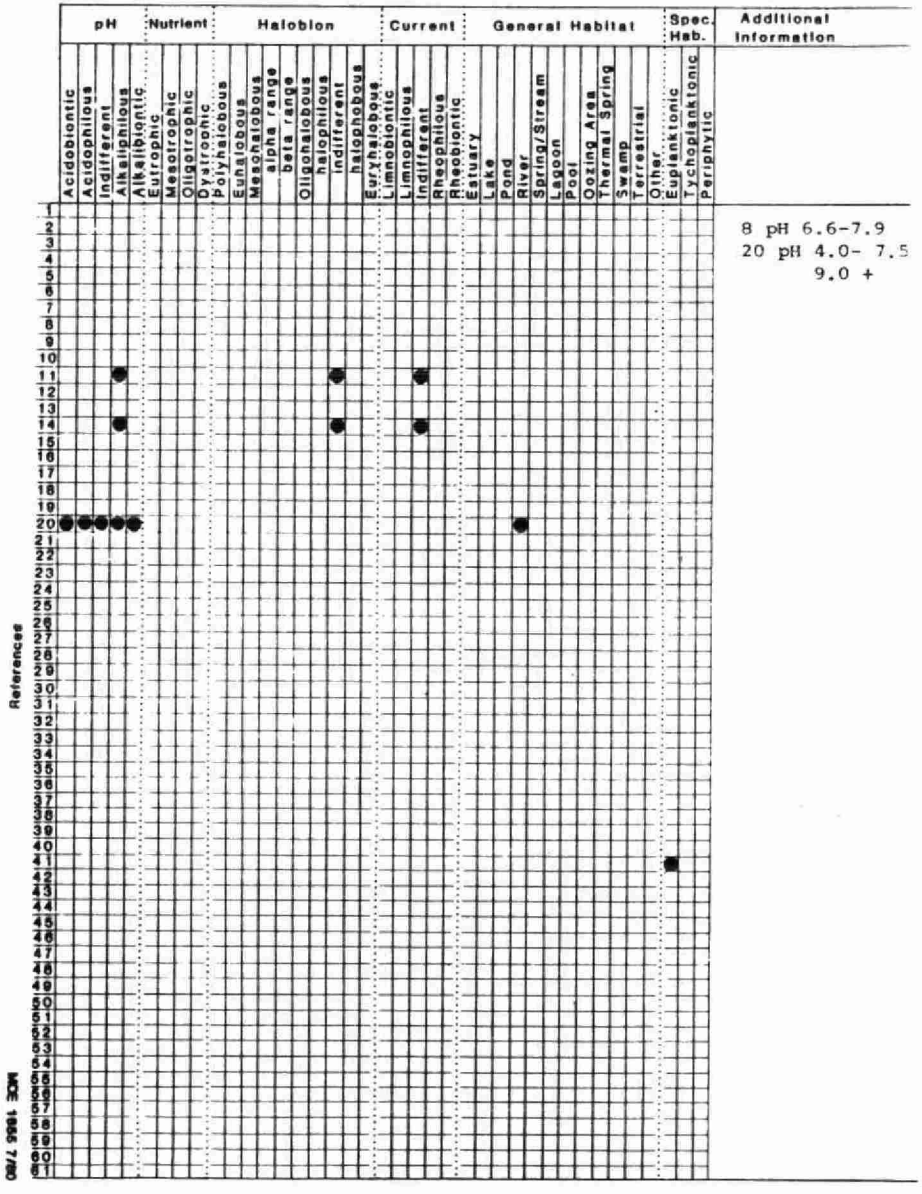
Synonym Synedra ulna var. biceps (Kutz.) Schonf.



19 pH 6.5 +
20 pH 4.0 +
48 prefers cool water

Taxon Synedra ulna var. oxyrhynchus (Kutz.)V.Heurck

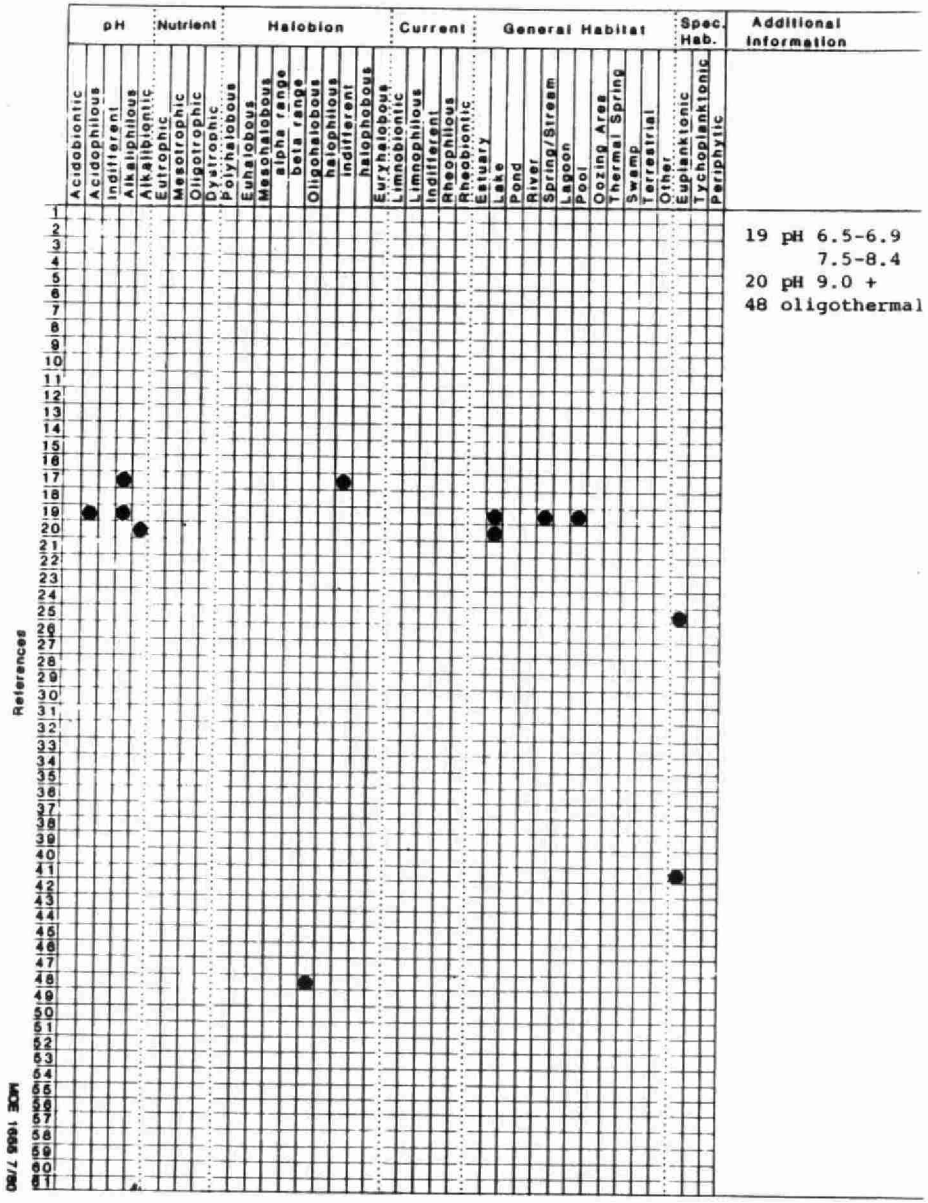
Synonym



8 pH 6.6-7.9
20 pH 4.0- 7.5
9.0 +

Taxon Synedra ulna var. spathulifera (Grun.) V.Heurck

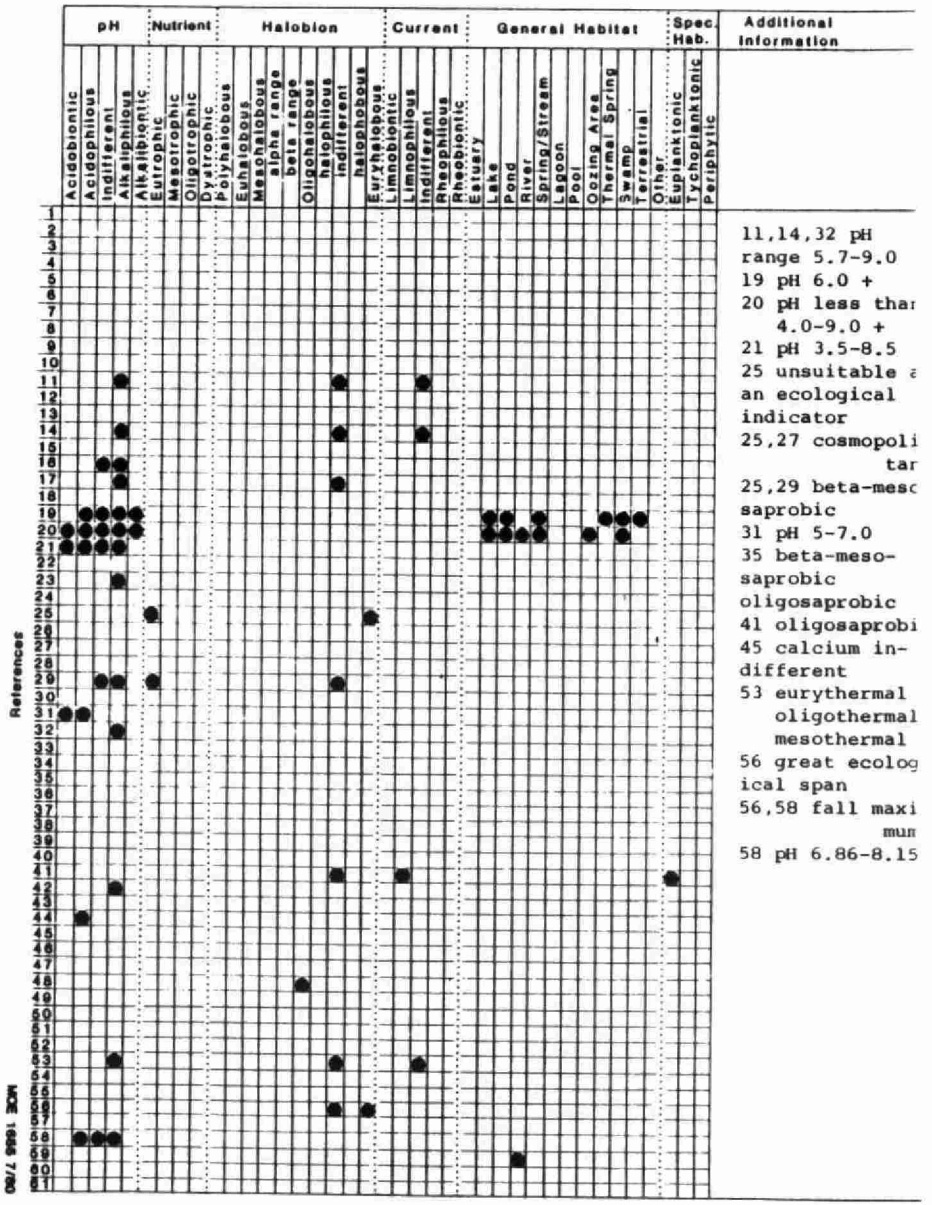
Synonym



19 pH 6.5-6.9
7.5-8.4
20 pH 9.0 +
48 oligothermal

Taxon Synedra ulna (Nitz.) Ehr. var. ulna

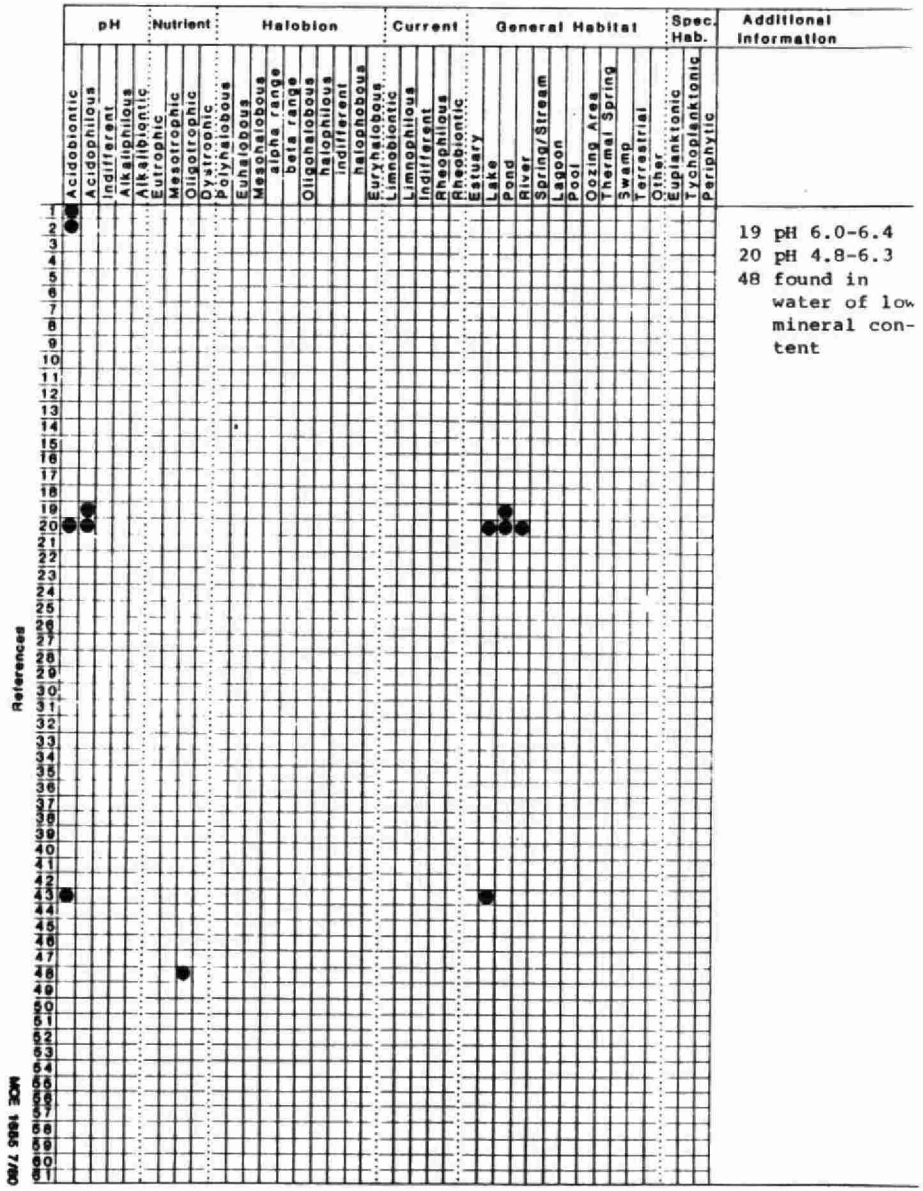
Synonym



11,14,32 pH range 5.7-9.0
19 pH 6.0 +
20 pH less than 4.0-9.0 +
21 pH 3.5-8.5
25 unsuitable as an ecological indicator
25,27 cosmopolitan
25,29 beta-mesosaprobic
31 pH 5-7.0
35 beta-meso-saprobic oligosaprobic
41 oligosaprobic
45 calcium indifferent
53 eurythermal oligothermal mesothermal
56 great ecological span
56,58 fall maximum
58 pH 6.86-8.15

Taxon Tabellaria binalis (Ehr?) Grun.

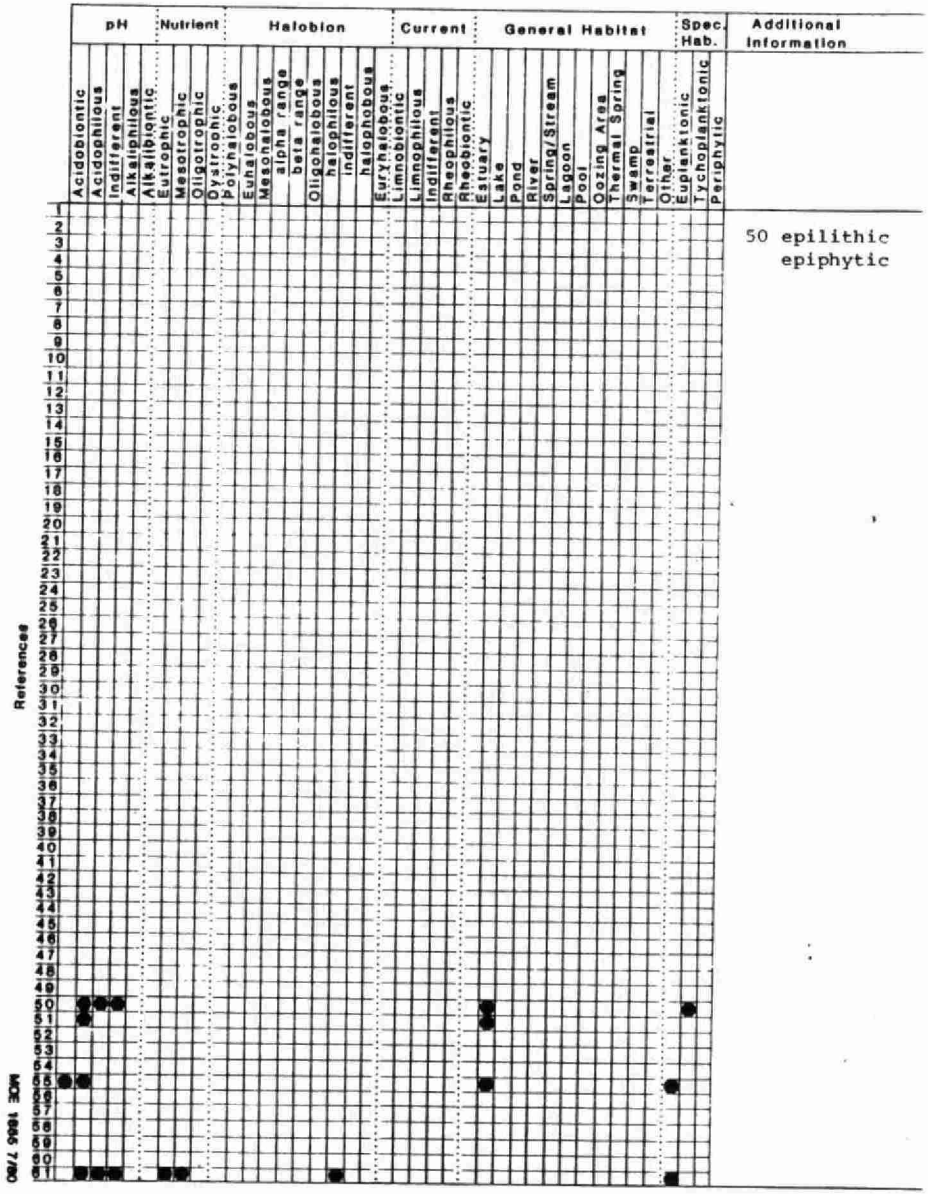
Synonym



19 pH 6.0-6.4
20 pH 4.8-6.3
48 found in water of low mineral content

Taxon Tabellaria sp.

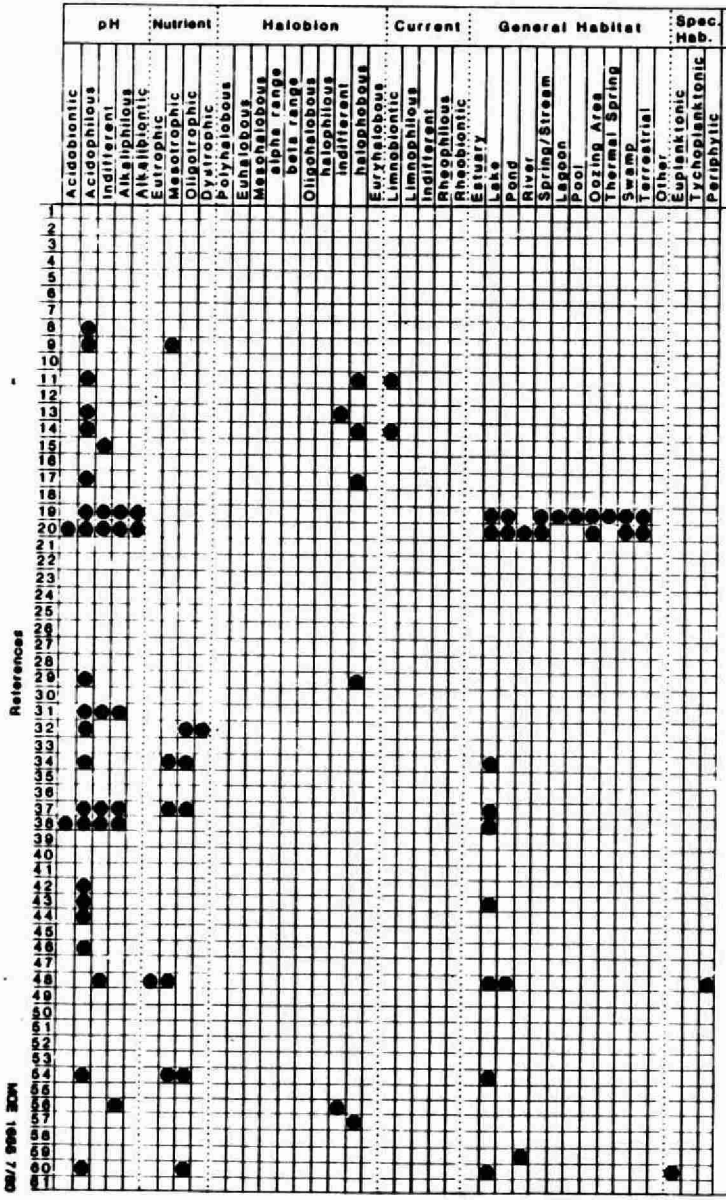
Synonym



50 epilithic epiphytic

Taxon Tabellaria fenestrata (Lyng.) Kutz.

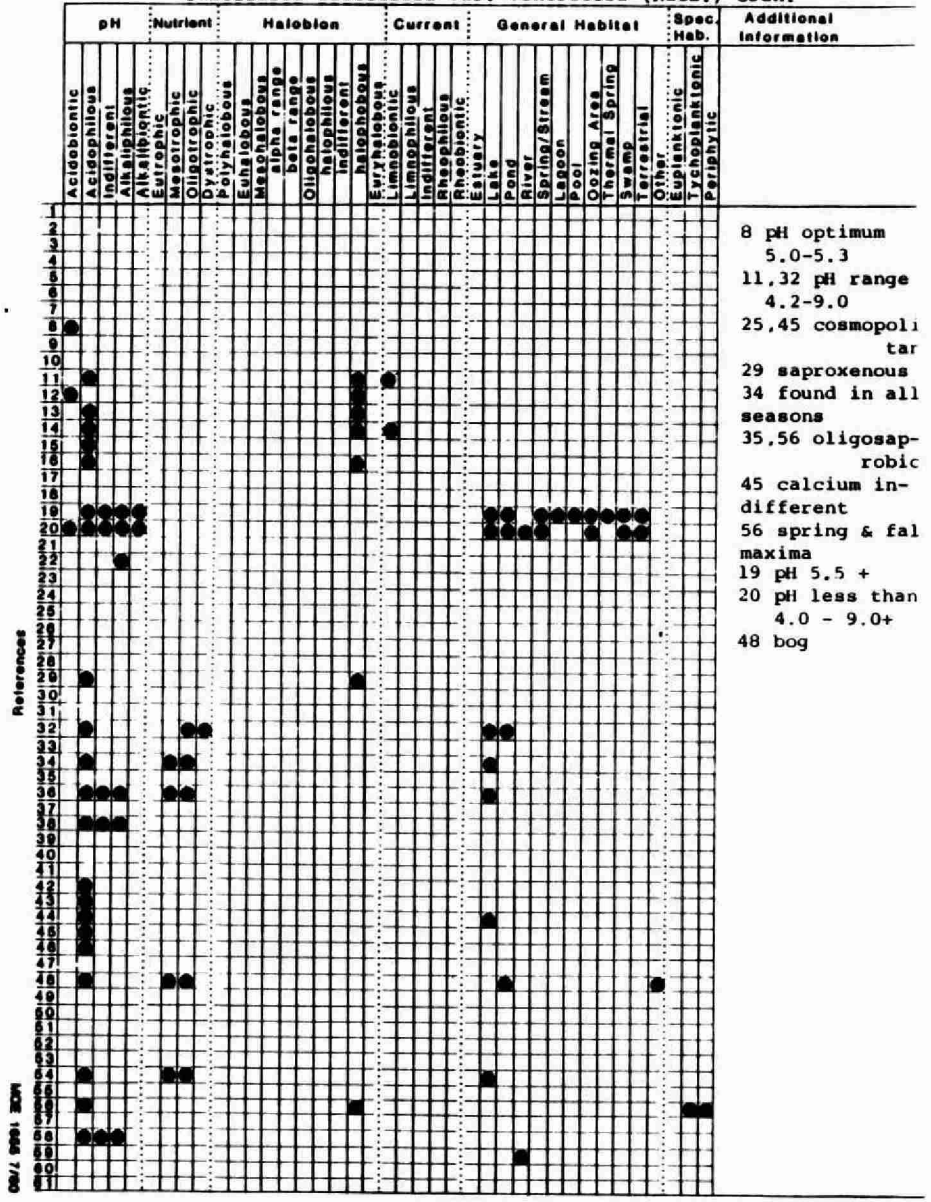
Synonym Tabellaria trinodis Ehr.



Taxon Tabellaria flocculosa (Roth.) Kutz. var. flocculosa

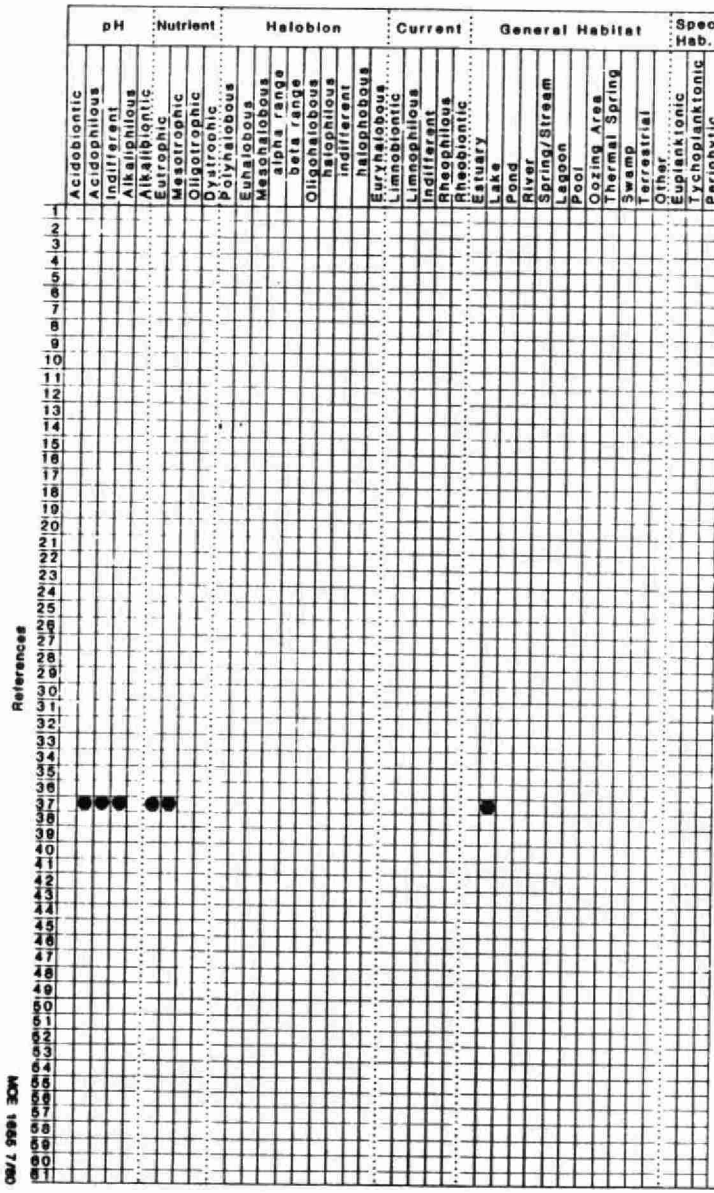
Synonym Tabellaria fenestrata var. intermedia Grun.

Tabellaria flocculosa var. ventricosa (Kutz.) Grun.



Taxon Tabellaria flocculosa var. linearis

Synonym

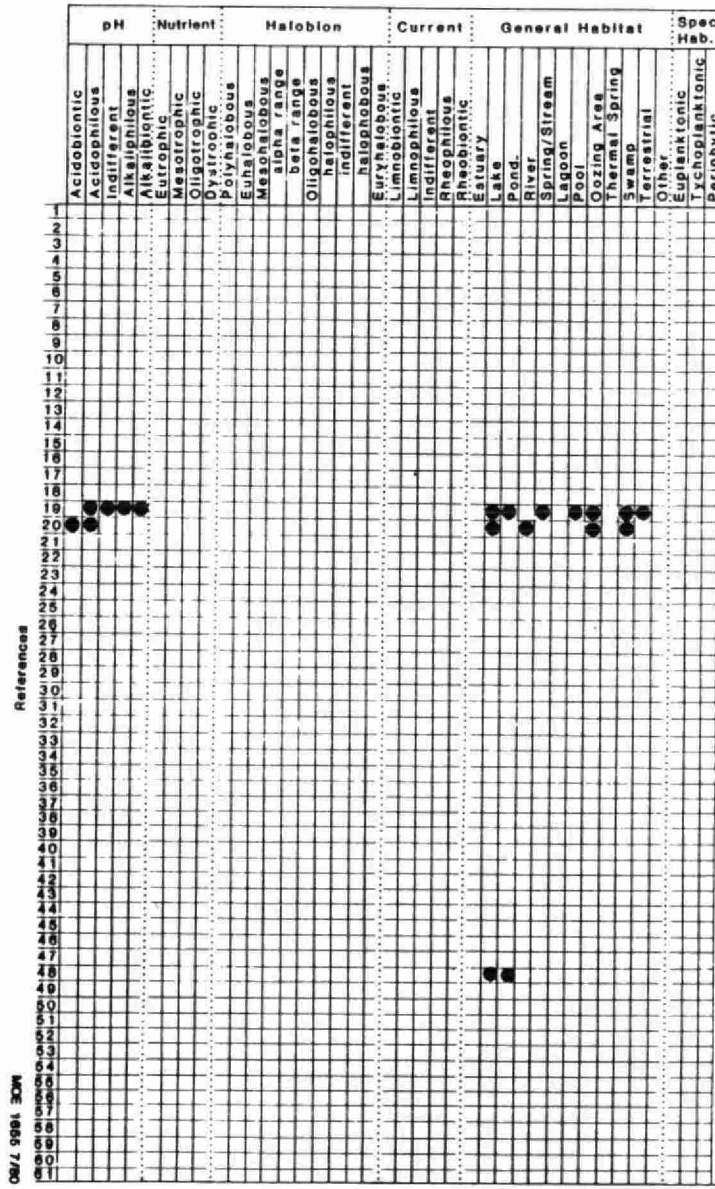


Additional Information

37 pH 6.0-9.9
mean 7.7

Taxon Tetracyclus emarginatus (Ehr.) W. Sm.

Synonym

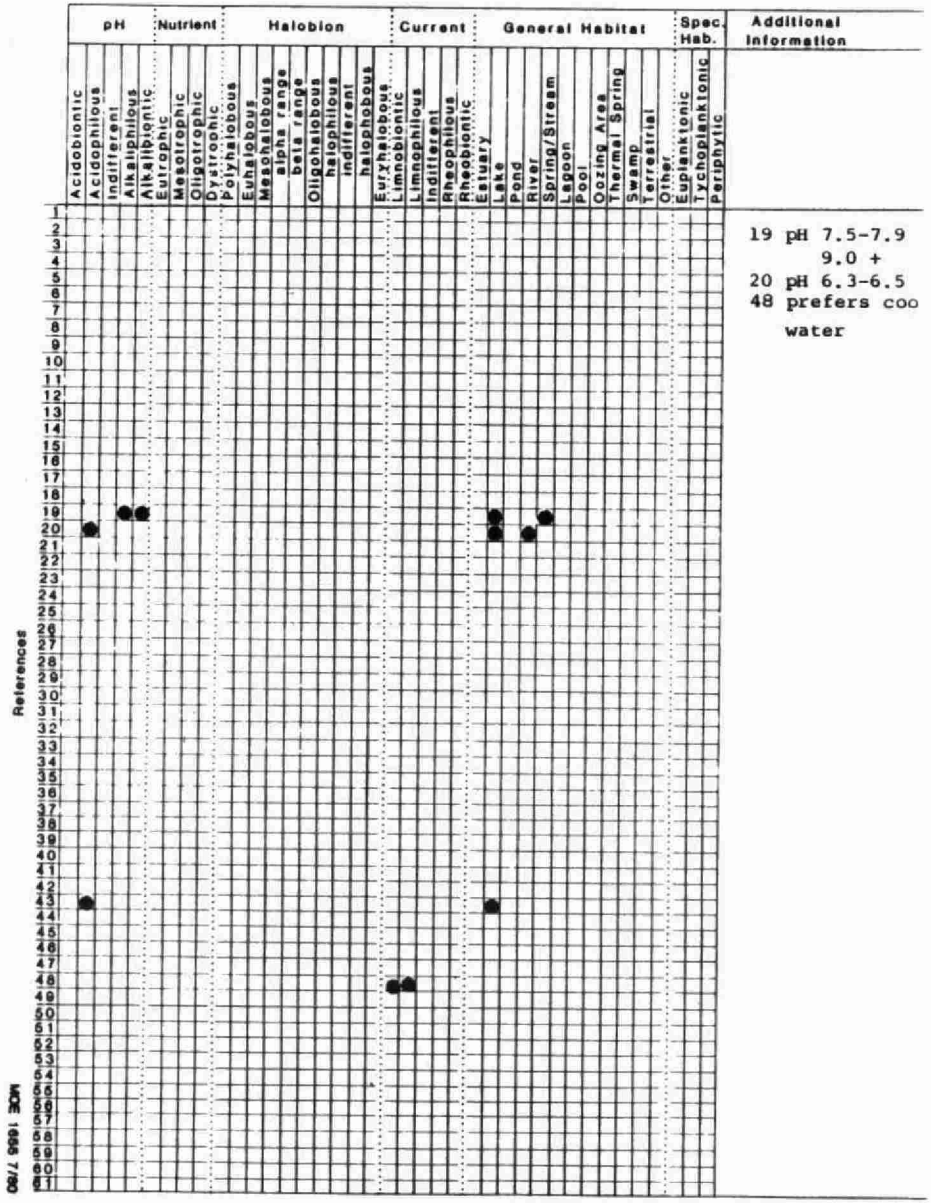


Additional Information

19 pH 6.0 +
20 pH less tha
4.0-6.5
48 prefers cool
water

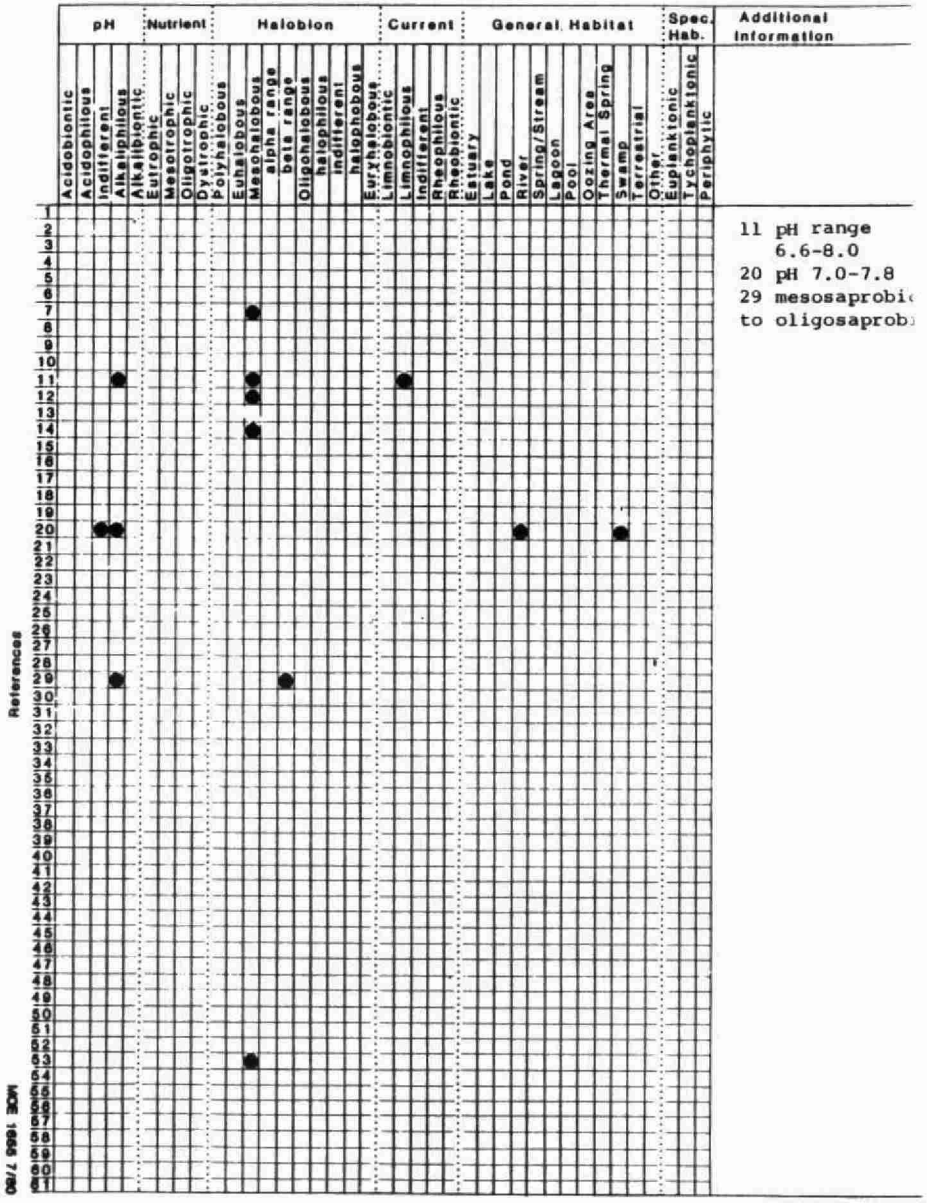
Taxon Tetracyclus lacustris Ralfs

Synonym



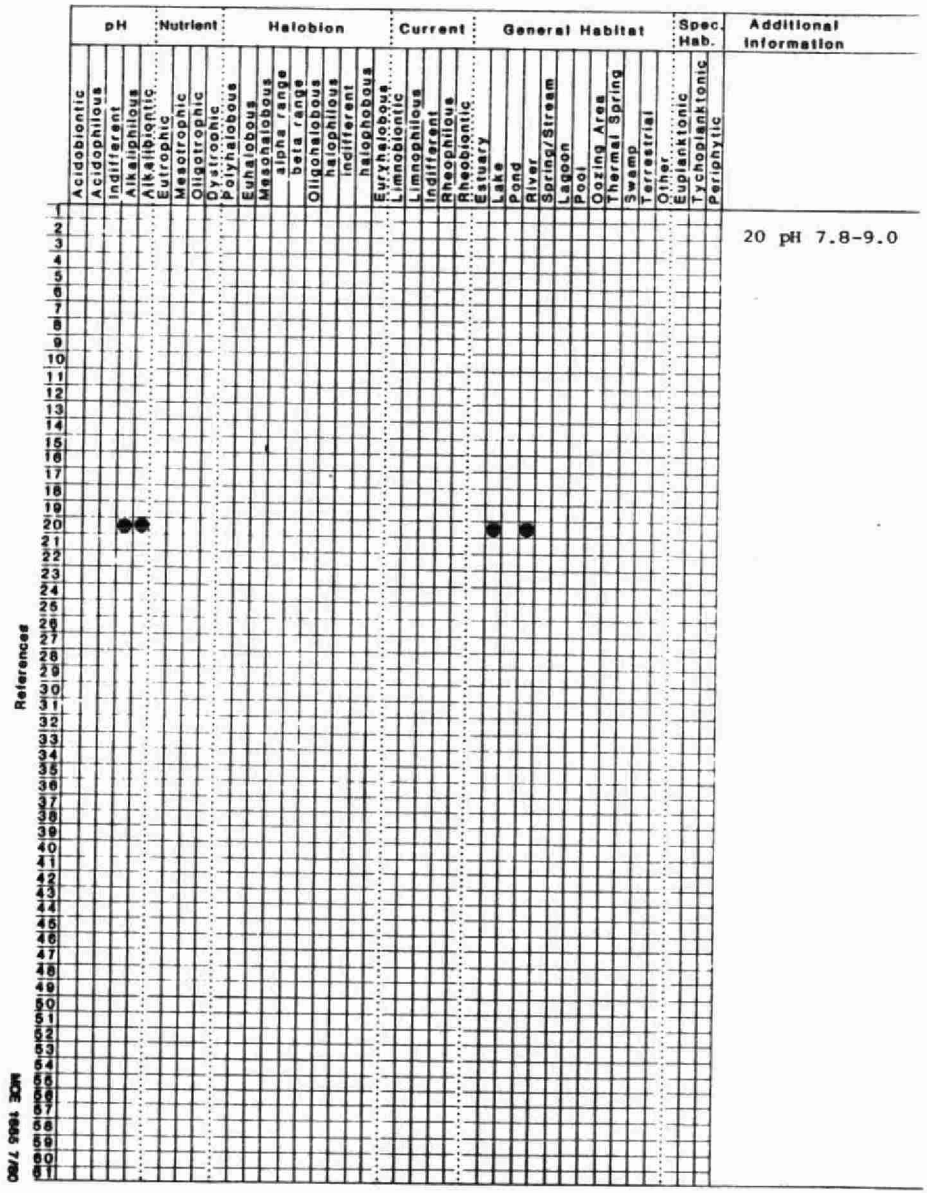
Taxon Thalassiosira fluviatilis Hust.

Synonym



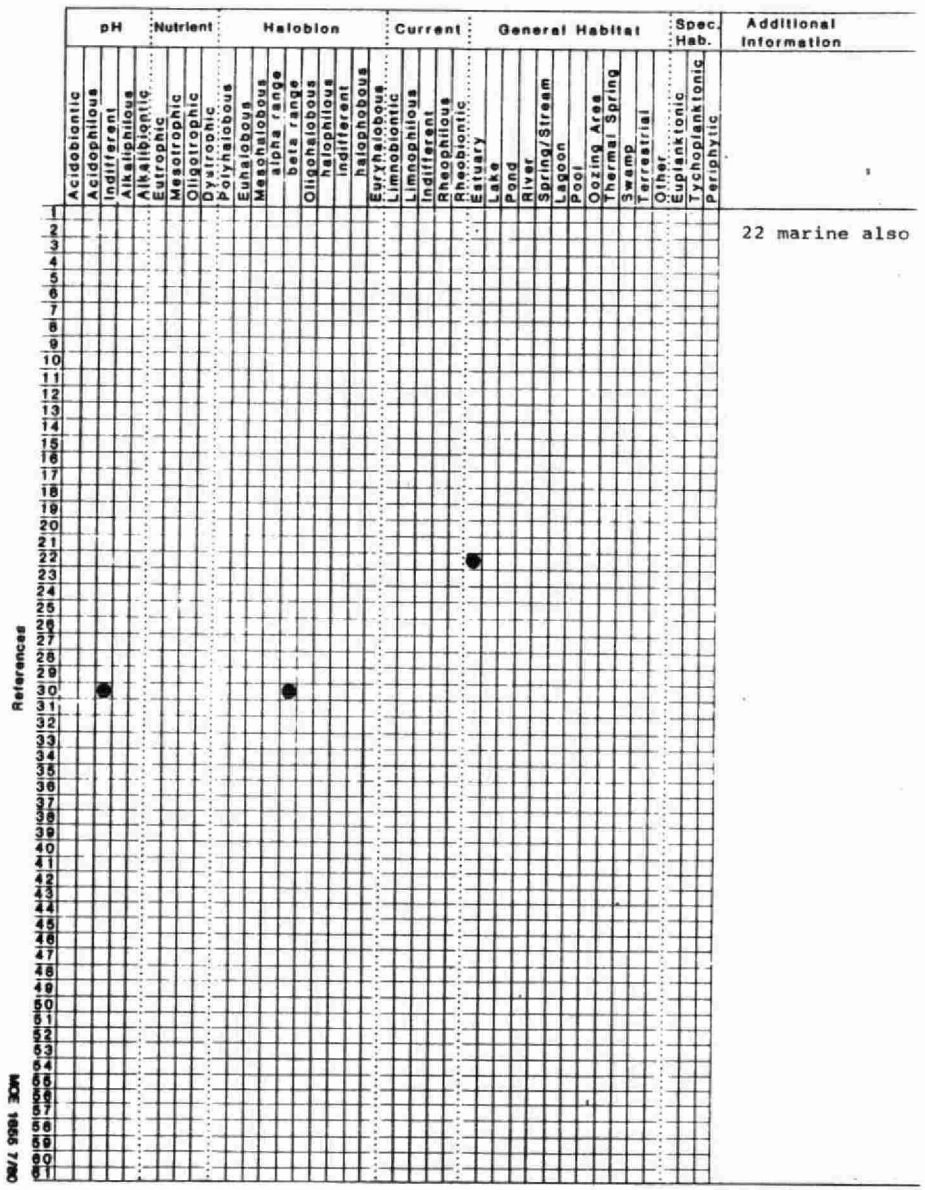
Taxon Thalassiosira gravida Cl.

Synonym



Taxon Thalassiosira pseudonana (Hust.) Hasle & Heim.

Synonym



Taxon

Synonym

References	pH					Nutrient			Halobion									Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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NOE 1995 7/80

Taxon

Synonym

References

pH | Nutrient | Halobion | Current | General Habitat | Spec. Hab. | Additional Information

Acidobiontic, Acidophilous, Indifferent, Alkaliphilous, Alkalibiontic, Eutrophic, Mesotrophic, Oligotrophic, Dystrophic, Polyhalobous, Euhalobous, Mesohalobous, alpha range, beta range, Oligohalobous, halophilous, indifferent, halophobous, Euryhalobous, Limnobiontic, Limnophilous, Indifferent, Rheophilous, Rheobiontic, Estuary, Lake, Pond, River, Spring/Stream, Lagoon, Pool, Oozing Area, Thermal Spring, Swamp, Terrestrial, Other, Euplanktonic, Tychoplanktonic, Periphytic

NOE 1995 7/80

Taxon

Synonym

References	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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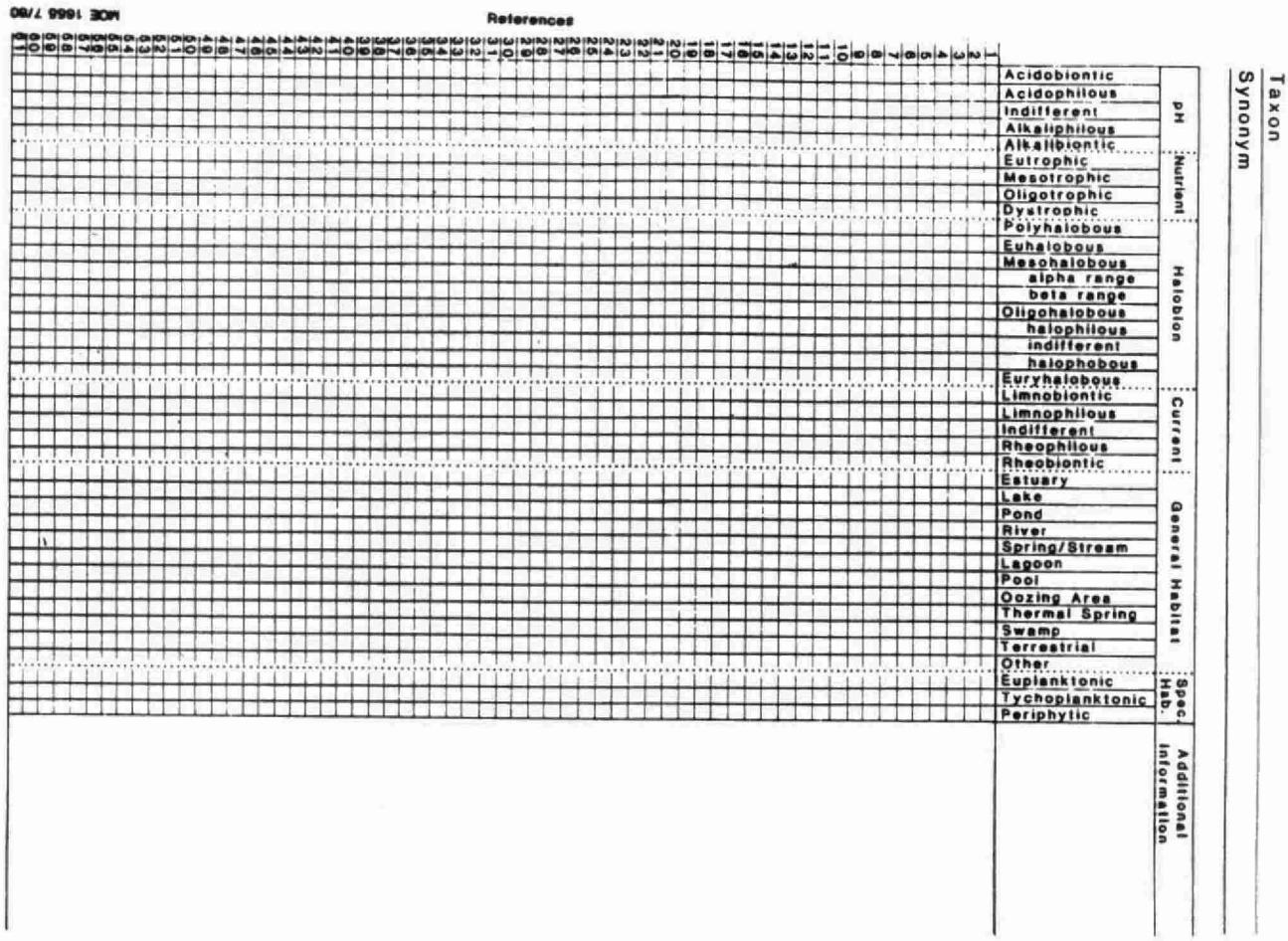
MCE 1986 7/80

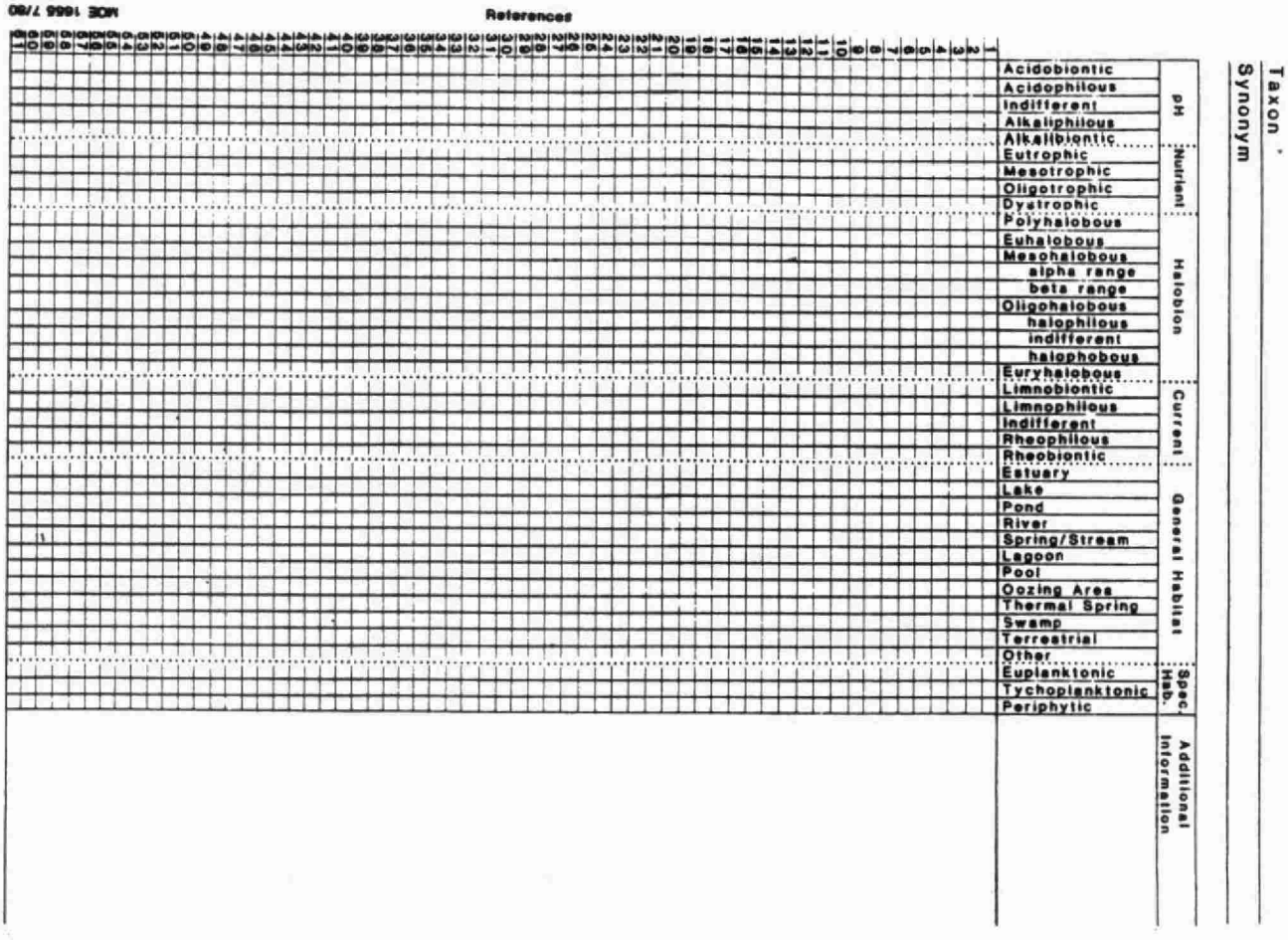
Taxon

Synonym

References	pH					Nutrient				Halobion							Current				General Habitat								Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MCE 1986 7/80


NOE 1666 7/80
References
Taxon
Synonym
pH
Acidobiontic
Acidophilous
Indifferent
Alkaliphilous
Alkalibiontic
Nutrient
Eutrophic
Mesotrophic
Oligotrophic
Dystrophic
Halobion
Polyhalobous
Euhalobous
Mesohalobous
alpha range
beta range
Oligohalobous
halophilous
indifferent
halophobous
Euryhalobous
Current
Limnobiontic
Limnophilous
Indifferent
Rheophilous
Rheobiontic
General Habitat
Estuary
Lake
Pond
River
Spring/Stream
Lagoon
Pool
Oozing Area
Thermal Spring
Swamp
Terrestrial
Other
Spec. Hab.
Euplanktonic
Tychoplanktonic
Periphytic
Additional Information


NOE 1666 7/80
References
Taxon
Synonym
pH
Acidobiontic
Acidophilous
Indifferent
Alkaliphilous
Alkalibiontic
Nutrient
Eutrophic
Mesotrophic
Oligotrophic
Dystrophic
Halobion
Polyhalobous
Euhalobous
Mesohalobous
alpha range
beta range
Oligohalobous
halophilous
indifferent
halophobous
Euryhalobous
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Limnobiontic
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Indifferent
Rheophilous
Rheobiontic
General Habitat
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Spring/Stream
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Pool
Oozing Area
Thermal Spring
Swamp
Terrestrial
Other
Spec. Hab.
Euplanktonic
Tychoplanktonic
Periphytic
Additional Information

Taxon

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1985 7/90

Taxon

Synonym

References	pH					Nutrient				Halobion										Current					General Habitat										Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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MOE 1985 7/90

Taxon

Synonym

	pH					Nutrient				Halobion							Current				General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Euryhalobous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tychoplanktonic	Periphytic	
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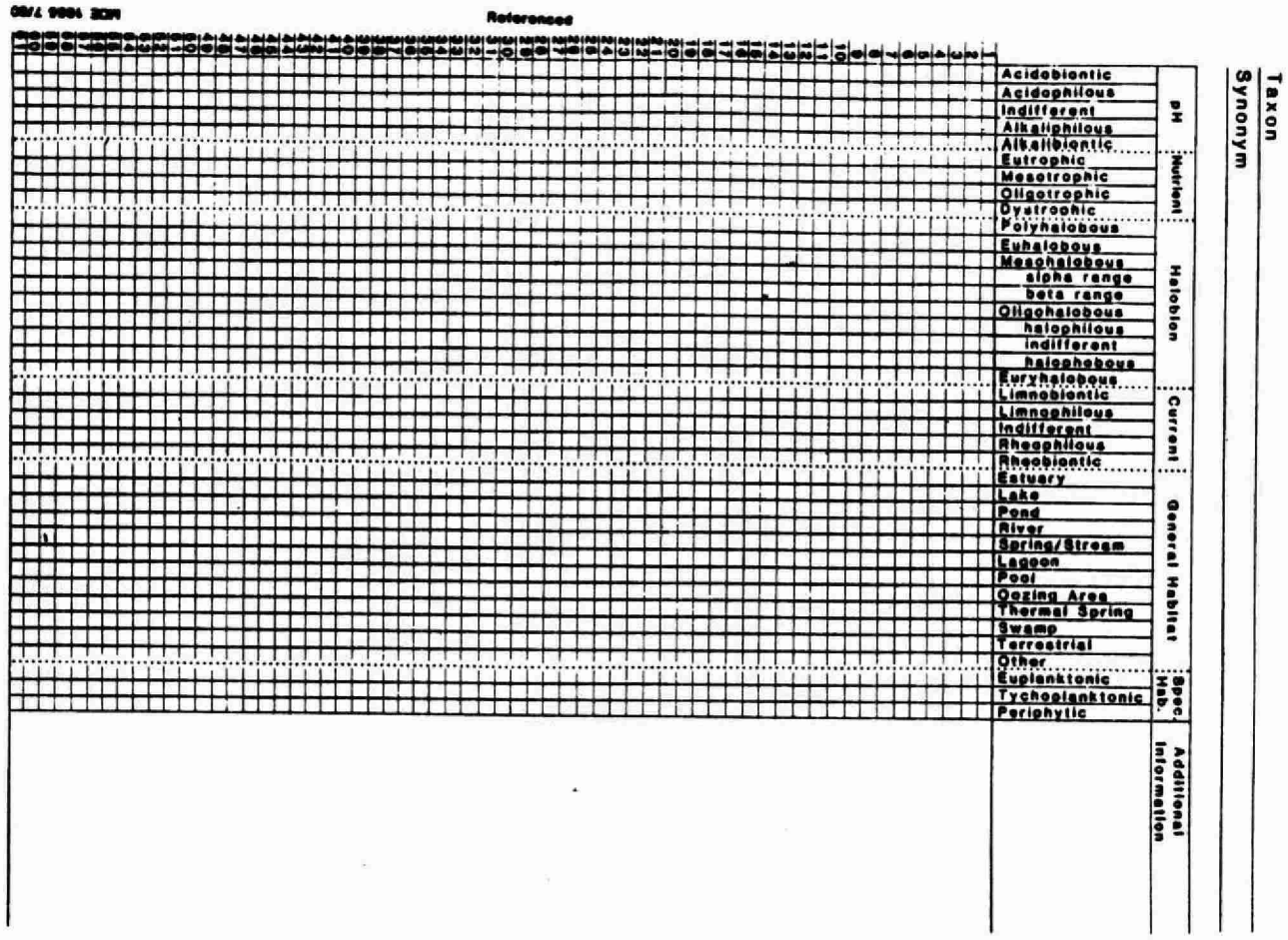
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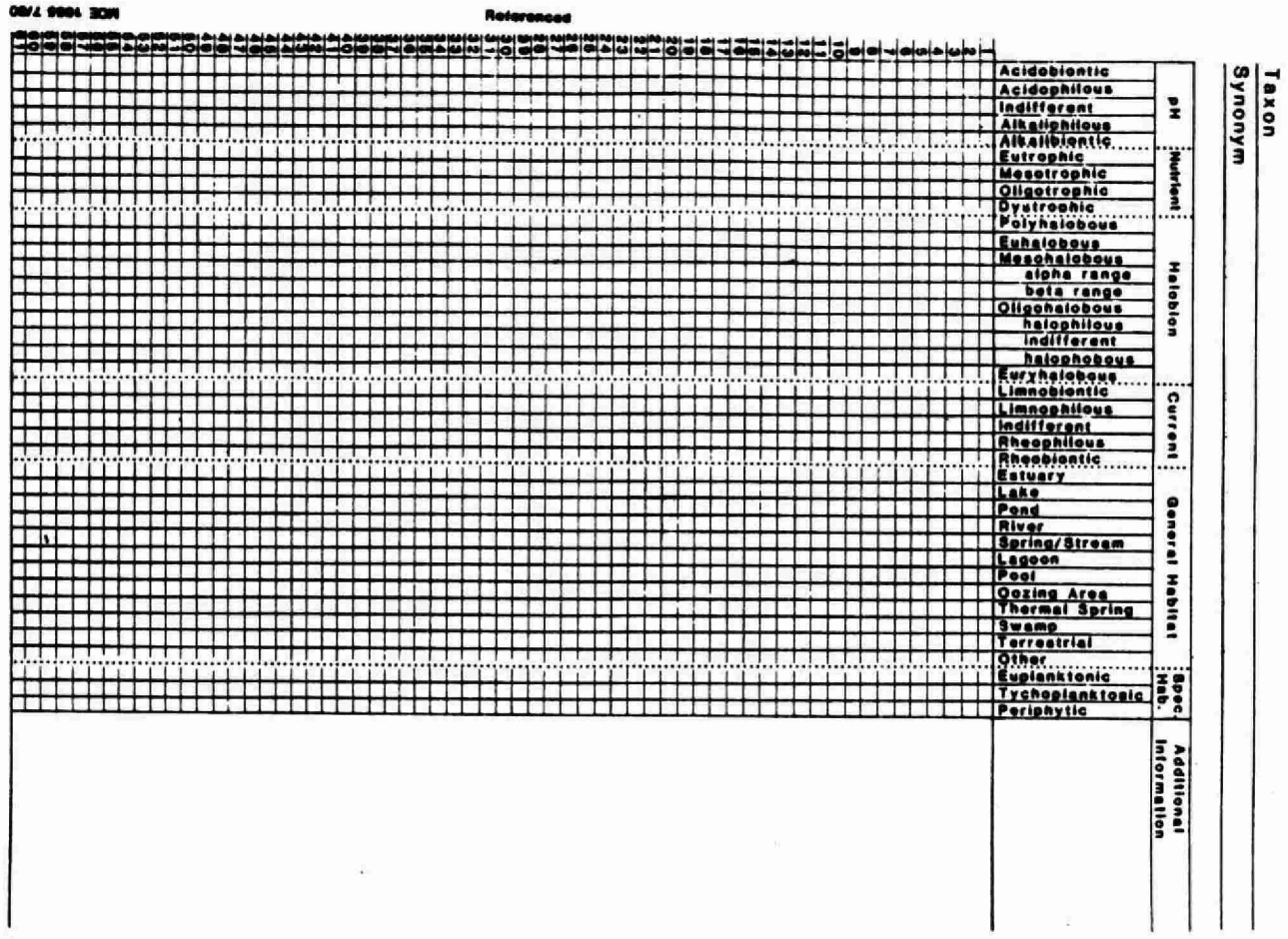
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References	pH					Nutrient				Halobion									Current					General Habitat									Spec. Hab.			Additional Information
	Acidobiontic	Acidophilous	Indifferent	Alkaliphilous	Alkalibiontic	Eutrophic	Mesotrophic	Oligotrophic	Dystrophic	Polyhalobous	Euhalobous	Mesohalobous	alpha range	beta range	Oligohalobous	halophilous	indifferent	halophobous	Eurythermous	Limnobiontic	Limnophilous	Indifferent	Rheophilous	Rheobiontic	Estuary	Lake	Pond	River	Spring/Stream	Lagoon	Pool	Oozing Area	Thermal Spring	Swamp	Terrestrial	Other	Euplanktonic	Tycholanktonic	Periphytic	
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Acidobiontic | Acidophilous | Indifferent | Alkaliphilous | Alkalibiontic | Eutrophic | Mesotrophic | Oligotrophic | Dystrophic | Polyhalobous | Euhalobous | Mesohalobous | alpha range | beta range | Oligohalobous | halophilous | indifferent | halophobous | Euryhalobous | Limnobiontic | Limnophilous | Indifferent | Rheophilous | Rheobiontic | Estuary | Lake | Pond | River | Spring/Stream | Lagoon | Pool | Oozing Area | Thermal Spring | Swamp | Terrestrial | Other | Euplanktonic | Tychoplanktonic | Periphytic

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